The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 89, NO. 23 CHICAGO, ILLINOIS DECEMBER 3, 1927

THE INDICATIONS FOR THE OPERATIVE TREATMENT OF FRACTURES*

CHARLES L. SCUDDER, M.D.
BOSTON

The treatment of fractures is the most important subject today in surgery without any exception. It is important for three reasons:

1. The severity of the injury to the whole individual in a case of fracture.
2. The need for developing a sane judgment in deciding at the outset on a line of treatment suitable to each case and the treatment to be carried through to the conclusion of the case.
3. The generally unsatisfactory ideas of treatment prevalent throughout our profession.

We all agree that most cases of nonunion, malunion with symptoms, and all compound fractures require operation. In our daily life, such events as the Great War, industrial awakenings and the appearance of complicated machinery, the workman's compensation acts, and the increased use of the automobile and other motor vehicles, have been tremendous stimuli to the surgery of fractures. The loss to industry alone from poorly treated and maltreated fractures is estimated at millions of dollars annually.

The object of this meeting is to help a bit to improve the treatment of fractures. Such a meeting is evidence of an aroused professional interest in this vast vital subject. We are all familiar with the activity during the past five years of the American College of Surgeons through the fracture committee of its clinical department in stimulating an interest in fractures. Much is being accomplished by that great body of surgeons to improve the treatment of fractures. With the advent in the nineteenth century of the influences of anesthesia, antisepsis and the roentgen ray, the nineteenth and twentieth centuries witnessed remarkable strides toward the perfection of neurologic surgery, the surgery of the thoracic organs, and abdominal surgery, including diseases of the gastro-intestinal, genito-urinary and pelvic organs. Diseases of these various organs often killed the individual. The best minds of the profession took cognizance of relief through appropriate surgery. Hence the general interest in the surgery of pathologic processes.

Fractures of the skeleton rarely killed; they only deformed, crippled and incapacitated. Little attention, therefore, was bestowed on fractures. When it was recognized that fractures killed, as in compound or open fractures, with a mortality of from 80 to 90 per cent, the devotion of a Pasteur and a Lister strikingly blazed the way to diminishing the terrible mortality. Today, an ordinary civil compound fracture is safely treated.

The operative treatment of certain war fractures confirmed forever the principles of wound treatment evolved, enunciated and proclaimed by Lord Lister of Glasgow, Edinburgh and London. The very recent celebrations of the centenary of Lister's birth serve to emphasize anew the fundamentals of the aseptic treatment of operative wounds. It is on these fundamentals that the operative treatment of fractures rests.

I can recall watching with awe, thirty-five years ago, Dr. John Collins Warren, the attending surgeon in my ward at the Massachusetts General Hospital, score and slash a closed fracture of both bones of the leg for impending gangrene due to tension from hemorrhage following injury to important vessels below the knee. The posterior and anterior tibial pulses were absent; the toes and foot were blue and cold. By these incisions Warren rendered a closed or simple fracture compound or open. The outcome of this logical and bold step was watched with apprehension. The man recovered with a sound leg. Compare this episode with the certainty, assurance and boldness accompanying a premeditated incision to the bone today. The change in attitude toward such a procedure is almost unbelievable. Our chiefs then were looked up to as giants and supermen in surgical experience and acumen, and they were such. Those were days of military conformity in surgery. The climate of surgical opinion was foggy. The balanced and enlightened surgical mind of today was in the making. What a tremendous contrast there is in surgery then and now. Timidity has given place to boldness; emergency measures, to premeditated direct operations.

The operative treatment of fractures has come to its present important place as a recognized part of general surgery gradually, progressively and comparatively recently. We must not chafe at the slowness of its progress.

It is a stimulating thought, and I believe a logical one, that the present serious discussion of the operative treatment of fractures coincides with the technical perfection of pathologic surgery. The discussion of the operative treatment of fractures coincides also with the entry of general surgery into the domain of preventive medicine. This is not a mere coincidence. I believe that general surgery has been improving and gradually developing up to and for this great event.

Constructive work, great advances in the operative treatment of fractures, could not go on unhindered until this approximation to the perfection of general surgery had been attained. The aseptic regimen of general surgery makes possible the treatment of frac-

* Read before the Section on Orthopedic Surgery at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

tures by operative methods. In fracture treatment today, the danger of sepsis is practically eliminated. A rigid conformity to the established aseptic regimen is essential to success and is postulated in this argument. The treatment of fractures by operation stands today on a fundamentally sound and safe basis.

We must strive more energetically in all our fracture treatment for anatomic perfection. Anatomic reposition is just as necessary in the bony parts as in the soft parts. Anatomic perfection means a nearer approach to functional perfection. Anatomic perfection means finally the prevention of terminal conditions caused by less than exact replacements. For illustration, if the fracture of the external condyle of the humerus were always exactly replaced or corrected when necessary by operation, there would be fewer late ulnar nerve paralyses, a distressing and crippling difficulty. Anatomic reposition is desirable.

To point to cases of fracture of the shaft of the femur in adults—fractures not involving a joint treated by manipulation or by skin traction with poor anatomic but good functional results—as justifying the expectant nonoperative treatment is not sound surgery. Rather such an experience is an argument for the early operative reposition of the fragments, which would give a perfect limb anatomically as well as functionally. In addition, this result would be secured very likely in a shorter time and with less discomfort.

There are today positive indications for the attempt to secure good form, and only a negative one for allowing poor form. The calamities of operative surgery, the misuse of operative methods, are not arguments against proper surgery. They are arguments in favor of attempted ideal surgery. It is dangerous teaching to advocate incomplete reduction of a fracture in an adult, and thus to sacrifice the results of an operative procedure or the more careful use of the nonoperative treatment. To live habitually in an atmosphere of surgical compromise is stunting to progress and is likely to develop surgical cynicism. It is the ideal condition that we seek, but we are always justified, of course, in an occasional intelligent compromise. The desirability of an anatomic reposition more and more frequently calls for the direct operative approach.

The roentgen ray is admitted into court as evidence in genuine and blackmail suits for malpractice. There is recognized a legal liability for failure to use the roentgen ray as an aid to diagnosis and treatment. This fact carries with it an increased responsibility and a greater necessity for an accurate adjustment of fracture fragments. To say that we don't want roentgen-ray results but good function is unfair to the legitimate use of the roentgen ray. The roentgen ray calls unmistakably for the open reduction of certain fractures.

A more precise and comprehensive conception of bone exists today than ever before was possible. Bone is no longer to be regarded as a dry, inert, stable, terminal form of matter serving as the passive framework of the body. Bone is a flexible, living, unstable, changing tissue—an active organ. Bone is intimately associated with the vital processes of the body. The body skeleton is a protection, a support, a means to locomotion, a reservoir of calcium. Bone tissue is sensitive to all extraneous influences and events. The reaction of bone to trauma, to fracture, is recognized as a complicated series of events—the processes of repair.

Bone is thus seen to be a delicate tissue. It demands and requires great consideration. That it must be gently handled during manipulations and at operation has come to be appreciated. This comprehensive view of bone emphasizes the importance of immediate, exact reposition of the fracture fragments. Thus the reparative processes will be little interfered with, and ideal union accelerated. This idea of bone establishes the necessity for the finest type of technic known in surgery today. The successful technic in the surgery of bone is unexcelled in delicacy and precision by even the recognized gentleness in the handling of cerebral and abdominal tissues. This conception of bone cautions us against the blind manipulative traumas of repeated attempts at reduction and points to the operative treatment of fractures as in many cases the ideal treatment.

A fracture is injury done to a complicated mechanism, and to an intelligent mechanism. The will is involved in every fracture; it influences the recovery of function. Therefore the recovery of the normal functioning of the whole organism is at stake—not merely the healing of a broken bone.

The less function is interfered with, the earlier the part is restored to normal. The earlier the will of the injured person cooperates in securing this return of function, the more rapid and complete is the recovery of the individual. If the fracture heals without any interference with function, without interruption of function, and without displacement of fragments, the final measure of function is at its normal maximum.

Following a fracture, how early may the parts be moved? As early as is compatible with not disarranging the replaced fracture fragments. We are all coming to allow the fracture to interfere as little as possible with the function of the part, including the contiguous joints.

The principles regarding movement following injury established by Lucas Championnière and followed and taught so well by Mennell in England have come to be recognized by all of us as sound:

(*a*) We do need to secure a return of function after fracture.
(*b*) We should secure a return of perfect function.
(*c*) We need most of all to obtain complete function at the earliest possible moment after the injury.

Absolute fixation by operation permits the earliest movement of contiguous joints without disturbing the reposed and alined fragments. The desirability of securing early complete function is a demand for the treatment of many fractures by operation.

There was a time when extra-uterine pregnancy was treated solely by rest and expectant measures. Then came the saving of more lives by operative procedures. In appendicitis, we are all familiar with treatment by the expectant, watchful methods, with their accompanying catastrophes, and we recall the stormy discussions over operation; finally, we today recognize the early operative treatment in most instances as the treatment of choice, with a resulting diminished mortality and a quicker return of function. Up to comparatively recently (ten years ago), operations for possible spinal cord tumor were not done until there were present the classic clinical pictures of spastic paraplegia, stiffness of the legs, and a definite level of anesthesia: a nearly helpless condition. Mistaken diagnoses were made, and consequently there resulted negative exploratory operations in many cases.

Now, with present diagnostic methods especially designed to show block in the spinal fluid pathway, and as a result of the use of iodized oil, which localizes the seat of block, operations are done with the certainty that an obstruction exists. A patient may be walking in nearly a normal manner and exhibit no change in sensory level whatever, and yet a cord tumor may be present and be successfully removed. In other words, conservative, expectant, partially corrective measures have given place to early operative procedures, preventing terminal conditions and securing an early return to normal function. These instances from general surgery might be duplicated.

By comparison with the progress of treatment in other surgical conditions, the employment of the operative treatment in fractures is seen to be a logical one. It is a natural development. It has come to stay.

We thus find that the operative treatment of fractures stands on the firm basis of established asepsis. It is a safe treatment.

An anatomic perfection requires operation.

The roentgen ray points the way to the open method.

As our ideas of the nature of bone tissue become clearer, the operative treatment appears as the least harmful, the most gentle of all methods of handling this sensitive tissue.

Uninterrupted function is desirable; consequently the immediate restoration of the broken bone permits an approximation to this ideal, and an earlier and more complete return of function is possible following the operative method than by any other method.

The argument from analogy in other surgical conditions makes it clear that the perfected operative procedures will be emphasized more and more.

INDICATIONS FOR OPERATION

What are the direct indications for the operative treatment of fractures?

As a basis for a definite reply to this question, we must assume that:

The highest degree of safety to the individual patient will obtain.

The surgeon and his assistants are skilled in the use of the treatment.

The surgeon possesses ability greater than that needed for the ordinary care legally required.

The surgeon has available the necessary instruments and apparatus.

The employment of that form of anesthesia applicable to the case in hand, whether regional, local, spinal or general, will be skilful.

The conduct of the operative treatment, so far as the preoperative and postoperative care is concerned, is adequate.

The final and exact procedure chosen in the operative treatment of a given case is appropriate.

By this treatment the involved or contiguous joints are moved as early as possible.

Under these necessarily definite conditions, what are the indications for operation?

The indications are that by the open operation there will be an earlier return to a more nearly normal function than can be secured by any other form of treatment. I believe that we may feel that for the reasons stated the operative treatment of fractures has come to occupy a definite and established place in general surgery.

The operative treatment of fractures is no longer a last resort in treatment; it is in many instances an initial method of choice. The recognition of this stage in the development of fracture treatment is a great step forward.

The conditions enumerated call vigorously for the treatment of certain fractures by operation. That does not mean that every fracture should be operated on. The honest and intelligent use of nonoperative methods will always care for most fractures. Great advance in fracture treatment will inevitably be along operative lines. This operative advance should be safeguarded and limited to skilled surgeons in suitably equipped hospital surroundings.

The advanced work should be further safeguarded by the control of a group of surgeons in the particular hospital. Individual initiative assisted by skilled cooperative advice will continue to add to the achievements of the operative treatment of fractures.

There can never be standardized methods of taking care of fractures. There are many methods of carrying out effectively the principles underlying fracture treatment. The principles are fundamental. The methods of applying these principles will vary.

The surgery of fractures is interesting and absorbing because each case is a problem by itself, dependent for its treatment on the exercise of the highest type of surgical judgment.

How about the proper treatment of the three or four hundred thousand fractures occurring in the United States and Canada in a single year? Most of these fractures in the first instance are cared for and always will be by the general practitioner, the local physician.

There are ideal simple methods of treating a fracture at the outset when the injury is first received. Every local physician can qualify ideally in the emergency handling in the first aid treatment. Such adequate immediate treatment will do much to prevent subsequent difficulties. The time to be worried about the outcome of fracture treatment is within the first two hours after the injury. Then if the local physician will always secure advice—employ a consultant—and between them they recognize at the outset that the case is difficult, and refer it to some one competent to care for it, serious troubles will be avoided.

If the local physician does his part well in the immediate initial treatment, if the general surgeon abreast of the times does his part honestly and well in employing approved treatment, whether nonoperative or operative, and if the experimental advances in fracture surgery are left to those especially qualified by accident or otherwise in safeguarded hospital centers, the future of fracture treatment will improve all along the line and be a credit to general surgery.

A surgeon who chooses to operate on recent closed uncomplicated fractures should possess at least eight qualifications:

An adequate knowledge of the patient, physically, mentally, socially, industrially.

An exact knowledge of the local conditions under consideration in the individual case.

Perfect instrumental, mechanical and physical equipment, including access to roentgen-ray apparatus.

An accustomed, proved operative technic, delicately balanced.

An understanding of the sensitive nature of bone tissue, its reaction to injury, and the conditions influencing the process of repair.

A practical experience in the successful treatment of certain fractures by modern nonoperative methods.

A knowledge of the various operative procedures for the immobilization of fractures.

An open mind in selecting the method best adapted to the case in hand.

A surgeon with these qualifications is capable of safely treating fractures by operation. A surgeon not having these qualifications should not employ the operative method in treating fractures.

CONCLUSIONS

May I state an ideal—always remembering that we live by ideals. If our ideals could all be realized completely, life might not be worth the living.

If one is a master of the general principles and technical details of both external and internal fixation, is informed as to the results of such treatment, has a complete knowledge of the proper use of massage and active movement and can secure the patient's complete cooperation, one's vision of the surgical treatment applicable to a given case of fracture of bone will be so broad, one's selection of the treatment will be so wise, and one's execution of the treatment chosen so ideal that the result both functionally and anatomically will be the best obtainable for that particular individual under the local conditions and environment found existing.

I have attempted to state the bases on which the operative treatment of fractures rests. These bases are solid, sound and unchanging. I have indicated the absolute necessity for the limitation of the operative treatment to those competent and equipped for it.

I should like to state my attitude on the choice of cases for the treatment by operation. With our present limited knowledge of the results of ideally conducted nonoperative methods and the results of ideally conducted operative methods, it is impossible to state a final opinion on the applicability of one method of treatment to a certain fracture. Our opinions will necessarily vary. Under present conditions, fractures fall into three groups: (1) those never operated on; (2) those always operated on, and (3) those in which operation must be looked on as of doubtful applicability.

In the first group will be found Colles' fracture, fracture of the clavicle, many fractures in childhood or the adolescent period, and many birth fractures.

In the second group will fall fractures of the patella with wide separation of the fragments; fracture of the head or neck of the radius with such displacement of the small proximal fragment that there would result without operation great limitation of pronation and supination; fracture of the olecranon with wide separation; fracture of the shaft of the radius with displacement; irreducible fracture of the shaft of the femur; certain spiral and oblique fractures of both bones of the leg in the middle or lower third, and fractures of the os calcis in which the line of fracture enters the astragalocalcaneal joint.

In the third group I should mention fractures in the humeral shaft above the middle and near the shoulder joint of both bones of the forearm, and, of course, many others.

It must be always borne in mind that the proper use of skeletal traction to the condyles of the femur or to the tibial crest or to the malleoli or through the os calcis may diminish the necessity for the use of the operative treatment by direct incision as an initial method of choice.

144 Commonwealth Avenue.

THE INFLUENCE OF WAR SURGERY ON TREATMENT OF FRACTURES IN GREAT BRITAIN *

W. ROWLEY BRISTOW, F.R.C.S.
Orthopedic Surgeon, St. Thomas's Hospital
LONDON

In order to assess the influence of the late war on the treatment of fractures in Great Britain, it is necessary to consider what was the state of affairs before the war. In the nineties, and in the first decade of the present century, the vast new fields of surgery which opened up—made possible by the work of Pasteur and Lister—had attracted surgeons so largely that the treatment of fractures had been allowed to fall into the background. There was so much to discover, so much that was new, that the incentive for a man to put his best efforts into the field of abdominal surgery was very real.

There can be no doubt, looking back to this time, that fractures were neglected by the generality of surgeons, and this of necessity was reflected in the paucity of the teaching. The discovery of roentgen rays in 1895 had to a great extent simplified diagnosis, and apparently obviated the need for the prolonged and careful clinical examination of the older surgeons. This has had one unfortunate result. Roentgen rays are essential in every case of fracture or suspected fracture as an aid to diagnosis, as a check to treatment, and as a safeguard to the practitioner in the event of subsequent litigation. But the use of roentgen rays does not mean that there is no longer any need for clinical observation and the training of that tactile sense which was so wonderfully developed in the surgeons of the past and is now rapidly becoming a lost art. For clinical observation and appreciation is necessary during the treatment of a fracture, lest, after reduction, the position is imperiled by men inexperienced in handling broken bones.

In the hospitals, the handling of fractures had passed largely into the hands of the junior officers. The honorary surgeon was nominally in control, but the hospital resident was the man actually responsible for the treatment in practice.

The operative treatment of simple fractures became prominent about this time. Arbuthnot Lane was the pioneer of this movement in England, and the work on the continent centered round Lambotte of Antwerp. There was great diversity of opinion whether or no simple fractures should be operated on as a routine; and in February, 1911, the British Medical Association, at the request of the Section of Surgery, appointed a committee "to report on the ultimate results obtained in the treatment of simple fractures with or without operation." The committee investigated the results in nearly 3,000 cases in which fractures had occurred during the five-year period January, 1906, to December, 1910. Each patient was examined by one or more members of the committee, and his degree of disability assessed.

The report was published in November, 1912, and the conclusions were summarized under nineteen separate headings. In the main, the committee favored operation; that is to say, primary operation to reduce deformity and fix the fragments. Of the 2,940 patients

* Read before the Section on Orthopedic Surgery at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

examined, only 147 had had primary operation performed, and the committee regretted that a larger number of patients showing the end-results of operation had not been available for personal inspection. The committee further found that in children under the age of 15, more than 90 per cent of good functional results were obtained by nonoperative methods, and considered that in children it was possible to obtain a high percentage of success by either method. This high percentage of good results occurred in spite of indifferent treatment, which should be conclusive proof that operation is seldom necessary in children.

The thirteenth conclusion of the committee reads:

> For surgeons and practitioners *who are unable* to avail themselves of the operative method, the nonoperative procedures are likely to remain *for some time yet* the more safe and serviceable.

Interest was stimulated by this report and by the critical survey of it, which was shortly forthcoming from Robert Jones, who delivered the presidential address at the Liverpool Medical Institution on the "Present Position of Treatment of Fractures," and in it analyzes the report. After paying tribute to the committee, and to the care, thoroughness and impartiality which it had shown, he goes on to criticize the general management and handling of fractures as commonly practiced in England. We must remember that all this occurred fifteen years ago.

Sir Robert says:

> I am, however, very confident that the question is not "Must we prepare ourselves to admit that primary operation is to become the recognized routine?" There are two very real questions—first, "Can we improve our nonoperative technic so as to remove the discrepancies which are in some instances glaringly apparent?" and, secondly, "Can we lay down any laws to guide us when we ought to operate at once?"

The principles underlying the successful treatment of fractures were taught and practiced by the Liverpool school, to the great advantage of the patients; but neither the principles nor the methods were widely appreciated or practiced elsewhere. It took a world war to popularize the Thomas splint and to gain a wide hearing for a clear elucidation of certain essentials of treatment.

From one's memory of one's days as a student and house officer, and from a perusal of the literature of this period and particularly of the report of this committee, one must conclude that in the prewar period all was not well with the handling of fractures in Great Britain. Then came the war.

LESSONS TAUGHT BY THE WAR

In the handling and management of fractures, the war taught us three great lessons:

1. The value of the Thomas splint.
2. The need for segregation.
3. The value of team work.

This was not all. It was early found that whatever views were held as to the desirability of plating fractures in civil practice, the plating of compound war fractures was disastrous, and this practice was given up.

In the early days—in 1914 and 1915, and early in 1916—there was no special organization. I was a medical officer with a yeomanry regiment in the early days of the war, and I well remember in April, 1915, in Alexandria, the return of some of the wounded from the Dardanelles. The first two operations that I happened to witness were plating operating on severe compound comminuted fractures of the femur. There was no organization and no equipment for dealing with these patients with compound fractures—particularly with those of the femur. The Liston splint was the only splint. The mortality was tremendous; it has been stated that it reached almost 80 per cent even in France, a large proportion of the deaths occurring at or en route to the casualty clearing stations.

In January, 1915, Robert Jones [1] wrote a paper on the use of the Thomas splint; this stimulated effort, and small numbers of Thomas splints were sent over to Boulogne. There were isolated individual efforts by men working under difficulties; for example, Mr. Max Page produced a skeleton splint in aluminum, approximating as nearly as he could the Thomas splint, made up from the fracture box supplied by the war office. This splint was used at Boulogne and later at Rouen, but still the only splint used in any numbers was the Liston, which was bracketed and known as Clarke's splint.

In June, 1915, practically all the patients from the casualty clearing stations reached the base hospitals with a Liston splint already applied.

Early in 1916, segregation of fractured femurs was attempted, first at Boulogne, and later in the year at Rouen. The man above all others who was responsible for segregation was Robert Jones; it is common knowledge that he and he alone succeeded in building up the great organization of orthopedic hospitals in Great Britain. This was segregation on the grand scale. Commencing with 250 beds in Liverpool, the orthopedic hospitals numbered more than 25,000 beds in the end. The results were amazing and were nowhere more dramatically shown than with the fractures. It was a triumph for segregation and the use of the skeleton splint.

The detail of treatment varied. Colonel Pearson at Edmonton used the nonpenetrating ice-tong caliper as the method of applying traction, and devised a special bed which made for ease in nursing. The Liverpool surgeons used the Thomas splint in the classic way. At Shepherd's Bush we used the Thomas splint, in the majority of instances, with fixed traction and body weight counter. It was the segregation, the working of a team as a unit which counted, the skeleton splint always being used, and all aware of the pitfalls and difficulties, which, once known, were fairly readily circumvented. Splendid work was done both in France and at the base in England. Major Sinclair, R. A. M. C., working at Boulogne, devised and adapted many ingenious contrivances—e. g., his net bed for fractures in the upper third of the femur—and we were always glad to get patients who had passed through his hands. By the time of the armistice the fractured femur had lost its terrors. The use of the Thomas splint was universal; segregation was established, and team work had reached such a pitch of excellence that the problem of treatment was solved.

Have we really learned these lessons which the war taught us? Do we realize them now as we realized them in 1919? Simplicity of means and simplicity of apparatus proved superior to more elaborate methods, and the treatment of fractures by manipulation and the control of fragments by splintage became recognized as the routine. Elaborate operative procedures of internal splintage by plates, screws and pegs was shown

1. Jones, Robert: Brit. M. J. 1: 101 (Jan. 16) 1915.

to be not only unnecessary but, in war surgery, positively harmful; and, moreover, correct alinement and reposition of the fractures were accomplished without this added risk of operation.

In the hands of the skilled surgeon, operation on simple fractures in civil practice under ideal conditions is to all intents and purposes devoid of risk; but the great bulk of fractures are not treated in perfectly equipped hospitals, and in rural areas, at least, must of necessity be dealt with in the cottages or the homes or in the smaller country hospitals.

Indeed, in England since the war the injuries directly attributable to modern road traffic have been tending to dominate the fracture problem, for with these altered conditions it is to the country hospitals that the patients are mostly taken. The cottage hospitals in the country districts and the hospitals in the smaller towns have increased in size, in number and in equipment. The successful efforts of the local war memorial committees have in many instances been allocated to this end. The staffs of these hospitals, too, have changed and have enlarged their sphere of activity; much of the surgery is now carried out in these hospitals which before the war was sent to London or the large provincial centers. It is not possible, for the present at any rate, that all these institutions should have attached a surgeon skilled in the operative treatment of fractures. It is therefore all the more necessary to emphasize the value of nonoperative methods and to train men in the art of manipulative and mechanical control; to insist on the importance of alinement, which is good when the line of force or body weight falls correctly on the joints; to teach that end to end apposition of the bones with angulation is worse than overlap because of the erroneous deflection of body weight; and then again to insist on the need of protecting young callus from strain and on the fact that consolidation is not necessarily complete in a month or so, and that a fracture, although correctly alined, will end disastrously if too early weight bearing is allowed without protection from strain.

Every student must be trained, and well trained, in the detailed management of the Thomas splint, which will form a necessary part of his armamentarium when he goes into practice. For immediate use as an emergency splint, a big ring is essential, and as an emergency splint the Thomas should be available always—in the factory, at the pit face, on the railway, and in every first-aid outfit. By the fixation which it allows, shock is minimized and the transportation of the injured made relatively safe. When used as a bed splint, and when modified as a walking caliper, a close fitting ring is essential, that countertraction may be taken from the tuber ischii. A special feature of the Thomas is the avoidance of circular compression, and its uses—from the fractured thigh of a baby onward—are too numerous to mention.

Wherever a man may practice, he will surely be called on to deal with a fractured thigh as an emergency, and will have to see it through. There is a simple plan of treatment. In his student days he must be taught this simple routine. It is not specialism; it is part of his general training, but it is an important part. The war showed what can be done; there was no difficulty in training men to handle these complicated fractures when the training was intensive. The lesson we should learn must surely be that no man should pass out from the hospital until he is competent to treat a simple fracture with reasonable safety and success.

THE POSTWAR PERIOD

And now to turn to the period after the war. It took some time for the general and teaching hospitals to settle down. There was considerable reorganization; there had been a break in routine; vacancies which had remained unfilled during the absence of so many of the younger men abroad had to be filled up.

In some few hospitals, fracture departments were organized, but in many there was a slipping back into the bad old way. The hospital in England which to my mind has the best fracture service is Ancoats, Manchester. Here there is complete segregation; outpatients and inpatients are segregated and treated by a team under the expert guidance and leadership of my friend Harry Platt. Then, as might be expected in a school like Leeds, we have segregation. In London, the only big teaching hospital really to attempt segregation is King's College Hospital, where Fairbank is responsible for fractures. Some of the other hospitals run a fracture clinic for outpatients with ambulatory fractures; that is partial, very partial, segregation.

The next milestone was a joint meeting of the surgical and orthopedic sections of the British Medical Association at Bath in 1925. In May of that year, Robert Jones delivered the Lady Jones Lecture before the University of Liverpool, on "Crippling Due to Fractures: Its Prevention and Remedy."

He gave an address that was later described as a slashing attack on present-day methods, and deplored that the lessons of the war were already being forgotten. After criticizing the methods as practiced particularly in the big teaching hospitals, and pointing out many of the imperfections, he went on to formulate a constructive program. Briefly put, he proposed segregation under men interested in the management and teaching of these bone injuries; the removal of fracture cases from the general wards into special wards, and the transfer of fracture cases, by those hospital surgeons not especially interested in the work to a fracture department staffed by men whose work and interest lay in that field.

For the Bath meeting, the discussion was on the treatment of fractures with special reference to its organization and teaching. Mr. Gask, professor of surgery at St. Bartholomew's Hospital, who opened the debate, and all who took part, were agreed once again that all was not well with the management and handling of fractures. On this point there was unanimity; on the solution of the problem, wide divergence of opinion.

In an admirable summary of the debate which appeared as a leading article in the *British Medical Journal*, the writer says: "Mr. Gask did not disdain the old argument which may be called the 'thin edge of the wedge,' which has been used for at least half a century against proposals to form special departments of surgery, as it has been in politics against all manner of reform."

All the surgeons who took part agreed on the need for change, but, so far as I am aware, no change has as yet been forthcoming. In the old hospitals, tradition plays a great part and change is not lightly undertaken. The men who control medical education, and who in reality control the teaching hospitals, are in a position of great responsibility. Many of the very best among them view the encroachment of so-called specialism with alarm. It is the very fact of their transparent honesty of purpose that makes any reform difficult.

They regard the formation of new special departments as disastrous to the education of the student; they say that the purpose of the teaching hospital is to educate men so that they should be fit to go out from the hospital into general practice—that they shall be good doctors. They say that they do not want to educate "specialists." But this is not the point at issue.

Those of us who favor segregation are at one with them; we too are striving to educate the student, not as a specialist but as a sound practical man with a good working knowledge of this important branch of the work.

As regards the treatment of the patient and the benefit he is to derive from segregation, there can be no two opinions. The economic importance of fracture treatment is far reaching, as the accident commonly occurs to a wage earner in the prime of life. The British Medical Association report to which I have referred gives 11.7 per cent permanent incapacity following fracture of the shaft of the femur, and 8.1 per cent following fracture of the leg bones. I have been in correspondence with a big employer of labor, and the problem is one which gives such employers some concern. They are aware that the treatment which the men receive in the hospitals is not always as good as it should be. In England, under the Workmen's Compensation Act, vast sums are expended by way of compensation; much of this is necessary, some is not.

Do we really believe that we are doing the best possible at the present time for the patient? Would any one of us be content to let a valued employee go to the nearest hospital and take his chance if he met with an accident and sustained a severe fracture of the leg, or should we not rather use our endeavors to arrange for his treatment by one accustomed to handle such injuries?

I shall be told that I am asking the impossible, that the highest possible skill should be available for every patient. It may not be possible all at once, but only by recognizing the facts can we work to this end. If we rest content with what is happening, if we allow difficulties and tradition to hamper us, we cannot advance.

The doctrine that succeeding generations of house surgeons must learn for themselves by actually handling the fracture, must learn from their own mistakes, may or may not be sound. It may be good for the house surgeon, though I beg leave to doubt it; but the most confirmed reactionary will not hold that it is best for the patient. It has been argued that although it is not best for the individual patient, it makes for the best education, and so at long last for the treatment of the majority. The fallacy is obvious.

The argument is used that with the increase of "specialism," with the formation of new departments, the student is losing more and more. It is pointed out that with special departments for tuberculosis, venereal disease, orthopedic surgery, urology, and so forth, these patients are no longer found in ordinary teaching outpatients and in the general wards, and that the student may pass his six or nine months as a surgical dresser and see little or nothing of these conditions. It is pointed out that he is worse taught and not better taught, and that when a question is set on one of these subjects by the examining board, a lamentable standard of ignorance is shown.

This may all be true, but does it affect the rights and wrongs of segregation? In my opinion, we must go back to first principles. The trend of modern science is such that no one man can be master of all branches of surgery. Why, then, should he be treated as though he were? It seems to me that we have kept to the old system of the master and the apprentice, but that the master is no longer in quite the position he once occupied. Why, then, do we leave the apprentice tied to him for some nine months of his time as a student?

I do not believe that we shall make the changes necessary to meet the needs of the student at the present day until we revise our ideas of the way his time is to be spent. I do not believe that a man can any longer afford to spend six months or more as a surgical dresser to one firm. The apprentice can no longer serve one master; he must serve many masters. His time must be parceled out and arranged so that time is found for intensive training in the many departments of surgery. We may deplore the fact that surgery is broken up into departments, but is the difficulty really insurmountable? Professor Osgood, who took part in the debate at Bath, and who made a wholly delightful and helpful contribution to that debate, using a charming chemical metaphor, said:

> We can hardly hesitate to initiate this acutely needed reform deterred by the fear of more specialism, for it has brought about less specialism, and has created a much wider interest in these neglected cases. It has added a reagent, which has dissolved some of the precipitate thrown down by the specialties, and made it again a part of the general solution.

There is no need that the student should be taught any branch of surgery as a specialty—he should be taught surgery. That he learns about the abdomen from one man, the urinary system from another, and fractures and bone and joint surgery from the third is surely good. He learns surgery, and if his teachers are selected with care, and with some consideration of their capacity to teach, he will gain from the fact that each one of them is dealing with that part of surgery which he knows, and to which he devotes his life's work.

It is unfortunate that we attach labels to men; that we call one a urologist, another a general surgeon, and a third an orthopedic surgeon. If it were possible, I would banish these names. A man should be known by his work and his results, and it is as futile to try to restrict the one as the other. Some, realizing that surgery as a whole is too vast an undertaking for any one man, voluntarily restrict themselves to one branch. Some, again, practice the whole in theory, but equally in practice are masters only of some part. I am not advocating specialism, for as I see it there is no need to plead for what is already an accomplished fact; and specialism, either acknowledged as such or masquerading under a more general name, has materialized.

I am very sure that the medical student's time must be reallocated in order to meet the growing needs of his education. When any question of such change arises, we encounter a solid wall of opposition, for it is dead against tradition. But is there, in fact, so much to lose?

It happened that I had to look up the figures of fractures of the neck of the femur, published in the report of one of the big teaching hospitals in London with more than 600 beds. I found that over a five year period fourteen cases of fracture of the true neck had been admitted, and in three years only two in all. Now what can the students have learned of the treatment? At best, only two sets of dressers out of twenty-four sets can even have seen this fracture treated.

With fractures segregated, even with this small number of examples of this particular fracture, all the dressers would have had the opportunity.

In England, any surgeon who is called on to help men with the treatment of their fractures in private practice—each one of us whose interest lies in bone and joint surgery—knows only too well that the teaching leaves much to be desired. It is a universal cry from the man in practice that he was never taught.

It does not matter to the first-class student. There are men who will learn no matter how bad the system or how few their opportunities, but to the average student, who forms the great bulk, it does matter.

There are signs of improvement. The lessons of the war forced themselves on individuals. Many men had of necessity to take an intensive interest in fractures for the first time. The Thomas splint is encountered in all sorts of places, where previously it was unknown.

This general recognition of the value of the Thomas splint is the really outstanding result—the greatest influence on the treatment of fractures which the war has so far brought about.

102 Harley Street, Cavendish Square, W. 1.

TRACTION AND SUSPENSION *

JOSEPH A. BLAKE, M.D.
NEW YORK

Some of the advantages of the treatment of fractures by traction and suspension are that:

1. A preliminary reduction is not necessary, reduction being accomplished by the treatment itself.

2. No anesthetic is required because traction produces immobilization thus relieving pain, except in exceptional cases where very strong tractive effort is made. In these cases, the pain is not so severe but that it can be controlled by the administration of morphine.

3. The limb is not surrounded by any retentive apparatus; consequently, it is open for inspection or massage, and for dressing of wounds if they are present.

4. Traction combined with suspension, as a rule, permits motion in the neighboring articulations, so that these joints preserve their function; therefore the patient is able to use the limb normally as soon as consolidation is accomplished.

5. Owing to the preservation of the circulation and nutrition of the limb, repair is hastened.

It has been estimated from experience that these advantages result not only in a saving in the time of treatment but also in a shortening of the long period of functional disability which often follows treatment by other methods.

In applying traction and suspension, a suspension frame and two splints are necessary, the one for the lower limb being a Thomas splint with the Pearson hinged leg piece. For fractures of the humerus a splint is not used, slings being sufficient for suspension. For fractures of the forearm, the Murray modification of the Thomas arm splint will be found sufficient.

The chief field for the use of traction and suspension is in the treatment of fractures of the long bones of the limbs, especially those of the humerus, the femur and both bones of the leg. It may also be applied to fractures of both bones of the arm, particularly compound fractures or gunshot fractures, which require frequent dressings, and may be used to advantage in the treatment of fractures of the phalanges of the fingers, and even fractures of the clavicle.

The main and primary aim in treating fractures is to obtain reduction in as short a time as possible, one of the underlying principles of treatment being to reduce before swelling of the soft parts occurs. Consequently, a tractive effort sufficient to overcome longitudinal displacement in the first three to four hours should be applied. The tractive effort then should be reduced to that just sufficient to keep the fragments in position. This maxim is true, particularly in skin traction, because although the skin can stand severe traction for a few hours, it is apt to blister if this is continued for too long, the epidermis being actually pulled off by the adhesive bands. As most fractures can be reduced in three or four hours if a proper amount of tractive effort is used, it is necessary to observe what is being accomplished in order that traction may not be overdone, and therefore roentgenograms should be taken, if possible, at the termination of that period. The usual mistake is to apply an insufficient amount of traction, wait a day or two before observing its effect, and then find that reduction has not been accomplished, then to add more and wait another day or two for observation, only to find that still more may have to be added. This delay results in losing the favorable time for obtaining reduction and prolongs the time up to that in which repair is taking place, which may make reduction impossible, save by means of an open operation. As most of these patients are confined to bed, a bedside roentgenographic apparatus is necessary.

Traction is applied in two ways: as skin traction, by means of adhesive bands or strips applied to the skin, and as skeletal traction, by traction applied directly to the bones. In applying skin traction, the mole skin adhesive is excellent, but bands of muslin or gauze may be glued on by means of Sinclair or Heussler's glue, or still better by a commercial glue, known as ambroid, which does not irritate or slip. Ambroid is sold in cans of various sizes, so that a fresh can may be used for each application.

Skeletal traction may be applied by tongs or by pins transfixing the bone. The tongs or pins may be applied directly to the distal fragment, or if that is impossible on account of wounds, it may be applied to one of the bones beyond the articulation distal to the fracture. For example, in a fracture of the femur, tongs may be applied to the condyles of the femur, or, in case that is impossible, the pin may be used, transfixing the tibia near its tubercle. Obviously it is far better to apply traction to the distal fragment itself, because by the other method the joint distal to the fracture will be injured, or at least active motion in it will be prevented.

The manner in which the tractive effort is applied, either to the bands in skin traction or to the instrument in skeletal traction, varies with different surgeons. If the limb is fixed within a splint, such as the Thomas splint, traction may be accomplished by fastening the traction band or cord to the end of the splint; and traction is produced, either by a turnbuckle or spring pulling the end of the limb out to that of the splint, while the splint is prevented from sliding up over the limb by the ring impinging against the body. This method is the one generally employed for the transportation of fractures, and it may be employed when a bedside roentgen-ray apparatus is not available for

* Read before the Section on Orthopedic Surgery at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

moving the patient to the roentgen-ray room, but it is obviously inferior to the method that is to be described here.

The best manner of applying traction is by means of weights and pulleys, especially when suspension is employed with traction. When the traction is used in this way the pull is constant, no matter how the patient or his limb is moved. The various methods of applying traction with suspension are difficult to describe. However, there are certain principles involved that are susceptible of written explanation. To pull two fragments apart there must be two forces: one acting on the distal, called the tractive effort or simply the traction, and one on the proximal fragment, called the countertractive effort or countertraction. In the method first described in which the end of the limb, that is, the distal fragment, is pulled to the end of a Thomas splint, countertraction is made by the ring of the splint against the body, so that both traction and countertraction are combined, so to speak, within the splint.

Suppose, in addition to the arrangement just described, that a weight is attached by means of a cord and pulley to the end of the splint. There is now an entirely different condition: countertraction is no longer made by the ring pressing against the body but by the friction of the body on the bed, and therefore the foot of the bed must be raised; even then the end of the splint is soon apt to engage with the pulley, nullifying the entire arrangement. Furthermore, when the splint is pulled away in this manner from the body, the control of the fragments which should be provided by the suspension slings or other apparatus attached to the splint is lost. I mention this manner of applying traction only to condemn it. One worse method that I have not infrequently observed is to attach weights to each end of the splint in a vain attempt to influence the position of the fragments by pulling the splint apart.

The most satisfactory way that I have found for applying both traction and countertraction is as follows:

One end of the traction cord is attached to the traction straps or tongs. The cord then passes over a pulley on the suspension frame to a weight. For countertraction a cord is attached to the ring of the splint, or the splint near the ring, and passes over a pulley on the head end of the suspension frame to another weight. This method is very satisfactory for the lower limb and keeps the splint well in place.

A modification of this method, by which the weight for traction also provides countertraction, is to attach one end of the traction cord to the end of the splint and then pass the cord through a pulley on the spreader on the traction straps, from which it runs back through a pulley on the end of the splint to a weight which then hangs from the end of the splint. Or, instead of going through a pulley fastened to the end of the splint, it may be passed through a pulley on the suspension frame. In the first case, the countertractive effort is about three fourths of the tractive effort; in the second, it is one-half the tractive effort. In both cases, the tractive effort is twice the weight of the weight.

Even when employing either of these last two methods affording countertraction in themselves, one should not dispense with the cord and weight attached to the proximal end of the splint, which also serves a purpose in holding the ring up against the ischium and away from the groin. These remarks, naturally, do not apply to the upper extremity.

Skeletal traction is more efficient than skin traction, and usually requires about half the pull to accomplish the same results. In practice, particularly in muscular patients, it is found impossible to reduce some fractures by skin traction, but practically all can be reduced by skeletal traction. Furthermore, skeletal traction may be applied to the distal fragment itself, thus permitting active as well as passive motions in the articulation immediately distal to the fracture.

Traction is a more efficient immobilizing agent than would be supposed, for it prevents not only recurrence of overriding but also angulation, because of the confining action of the stretched muscles. In fractures in which both fragments are long, such as a fracture at the middle of a long bone, this confining action is sufficient to prevent angulation, even if the direction of the tractive effort is varied to a considerable extent. Usually, however, the direction of a tractive effort should correspond to the direction which the proximal fragment would take if left at rest. This is particularly true in fractures near the proximal ends of the long bones, such as those of the surgical neck of the humerus or the upper third of the femur. In such fractures, the proximal fragment assumes a position, produced by the action of the short muscles attached to it, which is usually one of abduction and of rotation; consequently, the tractive effort should be applied so that the axis of the long distal fragment corresponds as nearly as possible to that of the proximal fragment. The limb must therefore be suspended and the traction be applied so as to abduct and rotate it out.

In some fractures reduction cannot be accomplished by traction alone, as it tends only to bring the fragments into a straight line. In such cases, suspension is used to produce the angulation necessary to perfect reduction. The best example of this is observed in fractures of the lower third of the femur in which the lower fragment becomes flexed on the leg and is retained there chiefly by the gastrocnemius muscle. In these fractures, if the leg is pulled straight out in the line of the proximal fragment, while the overriding may be reduced, the flexion of the distal fragment will persist. To overcome this, stout suspension bands are put across the splint behind, or, in the recumbent position, beneath the distal fragment, and traction is applied to the leg in a partially flexed position, thereby directing the distal fragment against the suspension bands which tilt it into place. In some of these fractures of the distal third of the femur, which are difficult to reduce, it is often well to use both skeletal and skin traction, skeletal traction being applied directly to the distal fragment and in line with the proximal fragment, while skin traction is applied to the leg in the flexed position. In this way, by flexing the leg to different angles until the proper one is found, a perfect reduction can be accomplished.

In some fractures overriding must first be reduced before the angular deformity can be reduced; for example, in fractures of the surgical neck of the humerus, in which it is often necessary to stretch out and exhaust the pectoralis major, which by contraction pulls the proximal end of the distal fragment into the axilla and beneath the short proximal fragment which is markedly abducted. Traction in these cases should be applied in the adducted position and kept up until the pectoralis is well stretched, when it is gradually changed, step by step at intervals of several hours, until it is applied in the markedly abducted position.

In fractures of the lower end of the shaft of the humerus, the elbow, as a rule, must be flexed, and traction has to be applied by a hitch on the forearm close to the elbow, but in the line of the axis of the proximal fragment. Instead of a hitch, tongs or a pin may be applied to the distal fragment. T fractures of the lower end of the humerus have been treated successfully by tongs, the pressure of the tongs overcoming the separation of the lower fragments; while, the forearm being free, the motions at the elbow could be carried out, thus preventing ankylosis.

I have found that I have been able to reduce all diaphysial fractures of the femur and humerus by traction and suspension with the exception of the few in which it was prevented by interposition of the muscles. In these, open reduction becomes necessary.

In case satisfactory reduction cannot be achieved by traction in a fairly short time, say a week, open reduction should be resorted to. It is, of course, understood that the efforts to reduce have been carried out properly. If it has been applied properly, I believe that skin traction should not be persisted in, for fear of blistering, which makes open reduction exceedingly dangerous. Skeletal traction should always be attempted before an operation is judged to be necessary; that is, in the fractures that can be reduced by traction.

116 East Fifty-Third Street.

FRACTURE OF THE SHAFT OF THE FEMUR

DIAGNOSIS AND TREATMENT *

KELLOGG SPEED, M.D.
CHICAGO

To throw new light on the diagnosis of fracture of the shaft of the femur is difficult. The classic symptoms of long bone fracture must be searched for to make the diagnosis after the break. In this day of overwhelming traffic a fracture of the shaft is expected after direct violence applied to the thighs of adolescents, generally after an automobile run-over accident; of adults, either from automobile injury as passenger or pedestrian, or the accidents incident to occupation; in the aged, quite frequently from falls or twists of the leg.

The primary symptom confirming diagnosis of shaft fracture is pain referred to the thigh aggravated by movements of the leg or by attempts at use. This pain is severe and continuous, and is clearly localized in the region of the fracture site. Disability in the use of the leg is generally complete. Deformity of the thigh shown by a bowing or angulation is an immediate and prominent result based on swelling and thickening of the muscular mass of the thigh caused by bony displacement, muscle shortening and extravasated blood within the soft tissues.

The position of the leg after thigh fracture is not always diagnostic because the normal axis may not be changed or it may be rotated or angulated in any direction. A false point of motion is not difficult to find merely by an effort to straighten the leg or by placing the palm of one hand under the area of deformity to raise the thigh gently. The patient himself may demonstrate this point when he attempts to move or is asked to raise the leg. Crepitus is not always present on slight manipulation, which is all the limb should receive at first examination when it is necessary to straighten out the leg or to prepare it for transportation. Shortening of the leg after fracture of the shaft of the femur may not be great, especially at first; it is apparent in nearly every case and is verified as true shortening when the legs are measured from the anterior superior iliac spine to the internal malleolus with the pelvis square and the legs at equal angles to it.

Examination of the femur by the roentgen ray is diagnostic; it is imperative to protect both patient and physician, and it betrays the type of fracture present, as transverse, oblique, spiral or comminuted. A fluoroscopic view of the fracture is sufficient and is a rapid means of diagnosis; a roentgenogram is a useful permanent record of the injury. Knowledge acquired from roentgen-ray examination has some bearing on treatment; it absolutely confirms the presence of fracture and has a medicolegal significance. Surgeons find it quite necessary to view the whole length of the femur by roentgen ray in fracture of the shaft, because more than one fracture plane may be present. Two fractures in the shaft of one femur may be separated from each other by many inches, one not being shown on a film representing the shadow of only part of the bone.

A diagnosis is usually made as the patient lies on the ground. One movement of the limb may confirm a false point of motion or shortening and at the same time gently fix it in a position of full extension. During this act crepitus may be felt; its absence is unimportant for diagnosis. I believe that treatment of fracture of the shaft of the femur must be immediate; the fracture becomes a surgical emergency.

When a diagnosis of fracture of the shaft of the femur is made on these signs and symptoms, the leg is splinted in full extension after it is straightened out. Splinting may be accomplished by slipping over the clothed leg a Thomas splint, either the full or half-ring type, carried in the physician's car or the ambulance, a traction loop made of handkerchiefs or any available material being applied to the shoe or ankle Transportation of the patient to the hospital or a place for permanent treatment follows. If a Thomas splint is not at hand, a board, piece of 2 by 4 or even the strapping of one leg to the other may suffice. Consequently, the slogan is offered: "Splint 'em where they lie."

The patient is covered with blankets or warm clothes and carted off to the hospital. This fixation in a leg splint with traction on the foot keeps the leg from further shortening; it saves the bone from jars which induce pain, from laceration of muscles and periosteum, and from shock. Such an early though temporary fixation aids in the rapidity with which permanent treatment may be started.

Permanent treatment should begin as soon as the patient reaches the hospital. If the patient is in shock, external heat, sedatives, salt solution transfusion and rest should be given. Above all, it must be remembered that the first duty is to the patient; the fracture itself holds second place.

If shock treatment is not required, the patient's clothes are gently removed and information regarding the condition of the circulation of the peripheral portion of the limb is acquired and put down in writing. If possible, the roentgen-ray examination is made at

* Read before the Section on Orthopedic Surgery at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

once; if that is not possible, the line of treatment required for the patient in hand must be decided on during the undressing, after observing the amount of shock, shortening of the leg, spasm of the thigh muscles, and presence or absence of an open wound.

The permanent treatment of fracture of the shaft of the femur may be outlined as follows:

A. Nonoperative Treatment.

General anesthesia is required whenever there are any attempts at manual reduction or when splinting causes pain.

1. *Reduction and splinting,* either by plaster of paris or other types of splints. Reduction may be performed by flexion of the thigh with traction, locking the fractured surfaces together and holding them locked in contact while the leg is straightened out. This may be performed while the patient lies on a fracture table to make the subsequent application of plaster of paris easy.

2. *Reduction, followed by placing the limb in continuous traction applied*:

(*a*) To the skin, as Buck's extension by adhesive tape or gauze dipped in glue.

(*b*) To the bone, as skeletal traction by means of the Steinmann nail or ice-tongs inserted into the condyles of the femur or the calcaneus.

Most continuous traction is augmented by suspending the limb to an overhead frame of any useful type. Suspension permits the use of the patient's torso as a counter weight and lightens the burden of nursing care. Both these methods are then subjected within a few hours to roentgen-ray control for position of the fragments viewed in two planes—anteroposterior and lateral.

B. Operative Treatment.

General anesthesia is required.

1. *Exposure of the fracture with simple replacement and locking together of fragments,* followed by the application of an external splint of plaster of paris, metal or wood, or by continuous traction to the skin or bone.

2. *Fixation of fragments by the use of internal splints,* which may be metal, as plates and screws, or bands or absorbable material, as bone plates or grafts of any description, or ivory plates, pins or screws.

COMMENT ON NONOPERATIVE TREATMENT

Manual reduction of fracture of the shaft of the femur followed by splinting is excellent for transverse fractures of the shaft, especially for children in whose thighs one may feel a firm locking and rubbing of bone fragments. This method will usually not suffice in markedly oblique or spiral fractures, the fragments of which fail to lock or easily slip out of place, or when interlying soft tissues interfere with a meshing bony contact.

Manual reduction followed by continuous traction, especially well planned suspension traction, is very good treatment. The maximum pull and power must be applied at the start to hold the bone at the length obtained by reduction, not to allow sliding back into overriding, which tends to recur in spirals and comminuted fracture. Roentgen-ray control of the position of the fragments in two planes is absolutely necessary during the course of this treatment. The film must be made while the weights are in place and the limb is in traction. This generally requires the use of a portable roentgen-ray outfit for bedside purposes. After a few days the amount of weight used in traction may be lessened, when the surgeon is satisfied with the position of the fragments and when muscle spasm has been overcome.

Skin traction is never as efficient as skeletal traction. With much overriding of fragments or seemingly irreducible shortening of the leg, treatment should always be started with skeletal traction. The Steinmann nail is more or less safe for general use in that it cannot slip out of the bone, but its insertion requires surgical asepsis. Ice-tongs and their modifications are also excellent, but are more expensive and not always available. The insertion of ice-tongs requires greater skill than the insertion of a Steinmann nail. Tongs may slip out of the bone or lead to slight infection. All forms of continuous traction require careful watching for skin pressure, infection or slipping. Some failures in reduction will result from this method, especially in the very muscular patient. One should not, therefore, persist in this method if failure to obtain length and alinement is shown by roentgen-ray examination after four or five days; it is better to proceed to operative correction if all conditions incidental to it are favorable. Continuous traction involves little fear of shock or sepsis, such as may result from open operation; its mortality is almost nil.

COMMENT ON OPERATIVE TREATMENT

Operative treatment is indicated primarily when an interposition of soft tissues precludes bony contact between fragments, when reduction and traction methods fail, or in a high percentage of fractures of the shaft of the femur in industrial cases under certain extraordinary facilities such as are possessed by few of us. The criteria by which failure of traction methods must be judged by the surgeon are disputed. Overriding of more than one-half inch or serious angulation in one plane, although the other may be nearly perfect, is generally accepted.

One must not delay operative treatment after a decision is made to employ it. Except when great shock is present, there is no reason why immediate operation for fracture of the shaft of the femur may not be performed, provided the usual factors weighed in the condition of any patient about to undergo a major operation are favorable to the patient's welfare. Early or immediate operation is advocated when that is the method of choice.

In operative treatment the use of the greatest skill and the least manipulation possible, along with the use of the simplest method needed to hold the bone fragments together, is advised. But if operation is employed it must give a sure result, and the work must be done in a thorough, masterly manner to avoid any subsequent regret. The burial of foreign material, such as metal, bone or ivory, in or onto the femur by any of the methods in vogue requires a delicate skill. It would be best to employ one who has this skill if the method is adopted.

After operation one should not depend too much on the internal splint; some accessory external means of support may better be used.

One's common sense is a useful guide during and after the healing of fracture of the shaft of the femur. To obtain early joint motions, if possible, massage or heat methods should be employed to aid circulation. One should be sure, also, to employ the roentgen ray at suitable intervals and to guard weight-bearing after it has been started, by measurements which warn of secondary deformity and shortening of the leg. Many patients are immensely benefited by wearing a walking caliper, even if for a short time, during the final contraction of callus into hard bone.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SCUDDER, BRISTOW, BLAKE AND SPEED

DR. WILLIAM O'NEILL SHERMAN, Pittsburgh: I fully concur in everything Dr. Scudder has said. During the past eighteen years, those who have advocated open operation have been looked on as radicals. Many considered it bad practice to use steel plates and screws in the open reduction of fractures and attributed infection and delayed union to their use. I take exception to that opinion. If the operation is properly performed, neither the plates nor the screws interfere with repair or cause infection, but the surgeon who neglects to carry out the meticulous technic is a causative factor. I infer from Mr. Bristow's paper that the fracture problem in Great Britain is similar to our own. Disastrous results following the use of plates and screws during the early years of the World War were due to inability to perform early and complete débridement and failure to carry out continuous chemical sterilization. Drs. Blake, Bristow and Scudder concur that fractures should be operated on if the closed method is unsuccessful. Buck's extension is indicated in the treatment of some fractures of the femur; in others, skeletal traction may be used; in case of the failure of these methods, operative procedure is indicated. Hitzrot of New York reported ninety-six fractures of the shaft of the femur treated by skeletal traction; in four of this series perfect function resulted, but in the remaining cases there was from 5 to 90 per cent permanent disability. These functional end-results do not compare favorably with those treated by the operative procedure as practiced by Hitzrot. There is no reason why the percentage of infection in the operative treatment of fractures should be higher than in the ordinary routine operation for goiter or hernia. There are not more than a dozen hospitals in the country equipped with the armamentarium and the staff necessary to carry out the refinement of detail. Whether it is good practice to follow skeletal traction by ice tongs, with open reduction, inserting such materials as steel plates and screws, is a debatable question. A satisfactory anatomic reduction should be accomplished within the first week or ten days; delay frequently results in permanent disability. Education of medical students and the profession is the only solution to placing this subject on the high scientific basis it deserves.

DR. W. L. ESTES, Bethlehem, Pa.: Fractures of the femur are relatively common. Out of 245 cases of fracture of the long bones, 13 per cent were fractures of the femur. Out of 584 cases studied, there were 100 fractures of the neck of the femur; nineteen fractures through the trochanter, and 457 fractures of the shaft, while fractures of the condyles numbered only eight. Of 344 fractures of the femur, studied by the committee of the American Surgical Association, ninety occurred in patients under 10 years of age; sixty-five between 10 and 20 years; 122 between 20 and 50 years; fifty-five between 50 and 70 years, and twelve between 70 and 90 years. Our British confrères have many more patients under 10 years than we have. They had 394 patients under 10 years; 155 between 10 and 20 years; seventy-seven between 20 and 50 years; ninety between 50 and 70 years, and none after 70 years of age. It is interesting to note the regions involved in Canadians and Americans. In the upper third there were 177 cases; in the middle third, 629, and in the lower third, 186 cases. Before the use of the Balkan frame came into vogue in America, I found that it was of great advantage to remove the friction of the bed clothing from the extremity by employing the old Buck's extension or some modification of it. I arranged a modification according to Volkmann's suggestion and made a leg-piece with a foot attachment. Two hardwood transverse pieces run on a sort of railroad made smooth with paraffin. With the traction on the limb by means of skin traction, this splint, bound to the leg and foot, allowed almost the full weight to come on the extremity, and when the knee was slightly flexed it made an ideal traction apparatus, with some countertraction. Most fractures of the femur are either transverse or very shortly oblique. There are some fractures, of course, which are entirely oblique. One of the papers stated that all fractures of the femur should have some continual traction, or be held in traction. On the contrary, I believe that not all fractures of the femur should be extended; fractures which are absolutely transverse should be jammed together when reduced, and held firmly until a fixed dressing is applied. I do not believe that traction on the muscles and the tension of muscles suffice to hold the fragments in place. They are apt to deviate. When a transverse fracture deviates, the result is a very bad and a very insecure union. Calipers or some form of support will have to be used for years. The force must be applied through pressure upward at the knee and traction downward at the foot. Manual traction is rarely adequate. One has to use some mechanical traction, such as a Lemon, Hawley or Lambotte traction apparatus, while the adjustment is made.

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: In regard to the Lane plate, we certainly grant that Dr. Sherman and others have obtained brilliant results in fractures of the shaft of the femur, but from my observation of roentgen-ray plates of cases treated in this manner, it is quite evident that callus is not revealed in the region of the plate, but on the opposite side of the bone. Another factor in the internal fixation is the possibility of refracture of the bone at a later time. I have patients in whom a Lane plate or other devices for internal fixation were not removed in whom fracture occurred subsequently, even a year or so after injury. I particularly want to call attention to one method of reduction which has not been mentioned in this symposium. This is the reduction of fractures of the shaft of the femur. I wish to speak particularly of transverse fractures. The reduction of these fractures, as Dr. Estes brought out, is not accomplished by brute force, pull, or constant traction. It may be necessary to use traction for a few moments on a fracture table, in order to relax the muscles, but this is not required in all cases. Many fractures of the transverse type can be reduced by acutely angulating, locking the fragments and then straightening the bone. I employ this method as a routine in all cases of fractures of the shaft of the femur, and I believe that the results obtained have been as satisfactory as those by any other method. Of course, if there is overriding or interposition of muscles and no reduction can be accomplished, operation is indicated. However, I believe that the question of angulation in reduction of fractures should be emphasized, as a large percentage of these fractures can be reduced and then treated by external fixation. Position and external fixation are very important. The limb is fixed on a fracture table in the position of abduction of the hip to a moderate degree, flexion to 30 or 40 degrees, and sometimes more, if the psoas muscle must be relaxed, and with the knee in flexion. A plaster cast is applied from the toes to the nipple line on the affected side, and extended down to the knee on the opposite side. Of course, any type of splint might accomplish the same purpose, though we have found the cast more convenient.

DR. WILLIAM DARRACH, New York: I think that Dr. Scudder gave an impression which I do not believe he meant to convey. The impression that I received from his paper was that the open treatment of fractures was the treatment to be followed in the large majority of cases. I do not believe that he meant that. There are few here who are more enthusiastic about the open treatment in selected cases than I am, but I believe that the number of these selected cases in which operation is indicated does not exceed 2 per cent of all cases. I disagree with Dr. Sherman's statement that there was no more reason for getting infection in operating on bones than in any other tissue. I think that he is wrong from an anatomic and pathologic point of view. If we view, microscopically, some of the sections taken from fractured bones, we will see that the ends of the bones have lost their nuclei for a certain distance from the line of fracture, and that the tissue is devitalized. The resistance to infection is very largely dependent on the blood supply. The blood supply of bone is poorer than that of any other tissue. After trauma, the blood supply to the bone is interfered with to a considerable degree. Therefore, bone is more subject to infection than any other tissue. For that reason, it is necessary to emphasize the meticulous care that Dr. Sherman has advocated in the treatment of fractures of the bone.

DR. J. HUBER WAGNER, Pittsburgh: These papers have discussed the open reduction and skeletal traction methods.

We are forgetting, I think, that many fractures can be reduced by manipulation and angulation, as Dr. Campbell stated, and fixed with external splints and that good, normal anatomic reposition can be secured if the attempt is made before the muscles have a chance to contract. I believe that if we will treat fractures seriously, as we treat a perforation of an intestine or acute appendicitis, and take the patient to the hospital and use all the methods available, such as the fluoroscope and the roentgen ray, giving immediate treatment, we will get better results. Before any one can qualify to treat fractures, he must have had a certain amount of practical experience; he must have seen what other men are doing, examined their roentgenograms and patients, and learned when these patients return to work. Then, and then only, will he be able to treat fractures skilfully. The man who is skilled in using traction should treat fractures by that method, and the man skilled in using open reduction should treat them by that method. I believe that if we approach the matter with open minds, have the proper armamentarium, and are absolutely sure of ourselves and true to our patients, we will at times say, "This fracture will give a poor result as it is; it must be reduced by the open method." We talk about fractures of the femur, that is, the most disabling ones, those of weigh-bearing bones. What percentage of these patients return to work without disability, and how soon? Those are the only two things that really enable us to estimate the true value of open reduction. In a series of fifty cases of transverse fractures of the middle third of the shaft of the femur in Dr. Sherman's service during a five year period, there was one infection. That patient was 54 years old, and returned to work in eight months after removal of the plate; the others returned to work on an average of six and one-half months later. Never have we paid compensation for resulting disabilities. In the treatment of fractures, we must carefully follow the after-care by movement of the joints above and below the fracture to keep the muscles from atrophying. This can best be done by open reduction and fixation, because there is minimum motion at the site of fracture and early union. As to Dr. Campbell's statement that one gets a minimum of callus, I think that is exactly what is desired. If there is a perfect anatomic reduction, the callus is seldom discernible. I have seen three cases of fractured femurs treated by other men, with subsequent fractures, not at the site of the first fracture but at a point distant from the first fracture, the plate remaining. As to Dr. Darrach's remarks, since I have been with Dr. Sherman, a period of seven years, we have had only one frank infection.

DR. HARRY E. MOCK, Chicago: What do we mean by bad results? Dr. Sherman gave the reports from New York which state that only four out of ninety-six patients were 100 per cent cured. The analysis of these results was made by an insurance company. I want to call attention to the fact that most of these investigations by insurance companies are made in this way: they simply run through their records and pick out the cases in which a certain percentage of disability has been allowed by compensation boards. Therefore, our statistics should state definitely whether they are compiled compensation board statistics or from statistics developed by a surgeon who understands how to classify cases. I think in the latter case we would find that in those ninety-six cases from the metropolitan hospitals in New York, the results were just as good as in the cases found in Chicago or Memphis or anywhere else. A great many of those cases were classified as disability cases, or not 100 per cent cured, I daresay, because of loss of joint function. Preservation of joint function should be emphasized. The preservation of knee joint function in fracture of the femur is most essential in getting 100 per cent functional results. That is one reason why I believe in caliper treatment, because during the caliper treatment we can keep the thigh in continuous traction, with the knee flexed, and every day the knee can be exercised by flexing and extending it. Lately I have been putting a little hinge into the knee joint plaster splint and thereby keeping up the knee motion, not to a large extent but to a certain extent during the treatment of the fractured femur. If we study and fight for this preservation of joint function, our figures in percentages of disability will be much better. As to operative treatment, I have operated in slightly less than 2 per cent of my cases of fractured femurs. In the remainder I have obtained very good results, although the anatomic results were not always perfect. During the last two years I have had one death from operative treatment of fractures of the femur. I have one patient in the hospital now who has been there for fourteen months after an operation for fracture. I have operated in a great many cases of fractures, usually ununited fractures. The first two fractures were early fractures. The outstanding cause of the ununited fractures referred to me for operation has been the Lane plate struck on the femur. Not all open reductions give us the results that we are sometimes led to believe they do, and I believe that if we will confine operative treatment to 2 or 3 per cent of the cases, using with the large percentage the treatment that was instituted in 1882 or 1883 in St. Luke's Hospital, we will attain our best results.

DR. EDWIN W. RYERSON, Chicago: The great danger in a symposium of this kind is that the wrong impression may be conveyed to many persons. We are not the Army of the Red and the Army of the Blue arrayed against each other. No man is holding a brief for any particular form of treatment—I might almost except Dr. Sherman—but the rest of us do not advocate primarily any one form of treatment. There is nothing in the world that requires more common sense than the treatment of fractures. One can do many things in abdominal surgery that one cannot do in bone surgery, and we must strike the note which will appeal most to the men who are not skilled in bone surgery. The vast majority of fractures are treated by men who are not especially skilled in bone surgery, and who have neither the time nor the inclination to learn all about it. We must not encourage them to believe that the only possible good result in a fracture of the femur will be attained by operation. It should be matter of common honesty with the physician who is caring for the fracture. If he feels that he is competent, and can get a better result by an open operation, he should be allowed to do it, provided he has had the proper training. If he is an honest man and knows that he cannot best assure the highest result for the patient by operation, he should not try to do it. All through Illinois and no doubt also in other states, there are communities that do not have the facilities of the large metropolitan hospital where all the appurtenances for fracture work are supplied. Physicians in these communities will have to do the best they can, and we must not allow them to get the impression that a Lane plate will invariably give such high percentage of excellent results as are obtained by Dr. Sherman with his extremely good technic and his especially trained assistants. We must not allow the men who see a small number of fractures to get the idea that operating in all fractures, and especially in the large, long bones, is safe, simple and sane.

DR. W. S. BAER, Baltimore: Mr. Bristow has struck the keynote; namely, that cases of fractures should be segregated in teaching centers and the student educated in all lines of this subject. Today most of us are educated from only one point of view, that of surgery. We are brought up in surgical clinics, and we naturally have a tendency to operate in any case that is brought before us. Fractures do not, as a rule, come under the classification of operable cases. They are purely a mechanical proposition. The questions of muscle tension, muscle strength, and the deformities produced by mechanics are involved, and mechanics are not taught in the medical schools of this country. Until the subject of fractures is taught in our medical schools from both points of view, we shall not solve the question. As a rule, most of us can do less harm by the nonoperative methods than we can by operative methods. We have to realize that physicians throughout the country are setting fractures. They have no great amount of skill in the operative side of the technic, but if we realize the principles of mechanics, that muscles are mules and that mules must be coaxed and not be driven by traumatic methods, and if we apply the principles of leverage and the principles of extension, we can correct most fractures without operation. We shall miss the traumatism of operation, which, as a rule, greatly adds to the length of time of recovery from a functional point of view. I realize that cer-

tain operations have to be done in certain fractures, but the more I practice the use of both methods, the less I operate. In regard to the treatment of fracture of the femur by plate, some of them must be so treated. The marked spiral fracture, the marked tangential fracture, will probably have to be fixed in some way, and yet most of them are not fixed with proper suspension and traction—traction however only for a certain time until the ends are engaged, but not traction all during the period, so that the bones are distended one from the other. Nobody means traction in that sense. As a rule, the less we open, the less trouble we get into. I have taken out nine plates in the last month, every one surrounded by pus.

DR. JOPEPH BLAKE, New York: Dr. Ryerson hit the nail on the head when he said that none of us are favoring any one method of treating fractures to the exclusion of others. I have been brought forth here as the apostle and the advocator of traction and suspension. Of course, we also use other methods, but I think that the methods of traction and suspension do obviate a great many operations and preserve the function, and it is the functional result that we wish to obtain, particularly in the industrial cases, so as to get the men back on the job as soon as possible. I think that if we all had the surroundings and the skill of Dr. Sherman, we might all be thorough disciples of operation, but the point is, just as Dr. Sherman said (if I am not mistaken), that there are only twelve hospitals in the United States which are properly equipped for the operative treatment of fractures. It seems to me that that is the answer to the whole thing. These fractures occur throughout the country, in rural districts and everywhere, where the medical men, although they may have the skill, have not the armamentarium. And, just as Dr. Baer said, there are too many disasters in the operative treatment. They are occurring all the time, and many of us see the results of these disasters; perhaps the patients are sent back to us finally for further correction, and it may be that that disposes us against operative treatment.

STUDIES ON THE EFFECTS OF ABUNDANT CEREAL INTAKE

II. THE USE OF SUPPLEMENTS OTHER THAN MILK *

GEORGE R. COWGILL, PH.D.
WITH THE ASSISTANCE OF
MARGARET H. JONES, B.A.
ROBERT A. FRISCH, B.S.
AND
G. P. JACKSON, B.S.
NEW HAVEN, CONN.

There is a current tendency in nutrition to emphasize the importance of milk as a supplement to cereal.[1] Rose [2] cites as one reason "why we eat cereals" that "they are good carriers of milk." The advantages of cereal and milk combinations are easily demonstrable and deserve emphasis.

There are some aspects of the cereal-and-milk problem, however, which do not seem to have received much experimental consideration. Certain groups of the world's population do not have access to much milk. In China, for example, milk is available in only small amounts. Cereal, chiefly rice, constitutes the dominant staple food and furnishes from 66 to 72 per cent of the calories of the average Chinese ration according to the estimations of Adolph [3] and Wu.[4] This great abundance of cereal certainly does not function as a carrier of milk, as is the case in the United States. If one assumes with Wu that the Chinese diet is adequate except, perhaps, with regard to calcium, it would appear that milk does not possess any nutritive properties of a peculiar and intrinsic nature that cannot be found in a suitable combination of other food materials with cereals. Then there are well authenticated cases of individuals, both babies and adults, who cannot tolerate milk. It has been shown [5] that when suitable supplements are used, whole grain cereals may be fed so as to furnish fractions of the total calories of the ration that are much larger than have been or are ever likely to be employed in the human dietary. In those experiments, however, the cereal-supplementing materials were specially selected with the view to being sure that the ration supplied all the essentials except calories. Milk was not used. Instead, meat residue, dried cooked liver, cod liver oil, lettuce and a purely artificial salt mixture were employed. The growth exhibited by the animals subsisting on some of these high-cereal-calory diets was astonishing. The high value of these rations for reproduction and lactation was also demonstrated.

It is admittedly difficult to determine precisely to what extent the results of experiments performed on rats and other animals are applicable to the human species. Actual experiments performed on human beings constitute perhaps the only absolutely satisfactory settlement of such a question. However, one can hardly adopt the attitude that the results mentioned do not have any application to human beings. In view of the considerations mentioned, it seems unnecessary to justify further investigation of the possibilities of supplementing cereals with foods other than milk or milk products.

The experiments reported in this paper represent one approach to this problem. They differ from those referred to in that the cereal-supplementing foods here selected are readily available and enter fairly extensively into the human dietary, and they were used as prepared in the home.

EXPERIMENTAL

Details of the diets used are shown on the chart, which is self explanatory. All materials were purchased from a local grocery. Oatmeal, Pettijohn's whole wheat and yellow corn meal, as examples of whole-grain cereals, were tested at the three levels indicated on the chart. Each of the cereals was cooked and dried before being incorporated in the ration. A corn and a wheat breakfast food product as examples of milled cereal products were also tested at the 65 and 80 per cent levels. The corn product was not cooked but used as obtained from the grocery, because the material is used this way in the home. As human beings always cook the wheat product before eating it, this material was cooked and dried before being incorporated in the experimental ration. Egg was selected because of its content of good protein, calcium, phosphorus and iron, and vitamins A, B and D. Cold storage eggs, as purchased from a local grocery, were boiled, the shells were removed, the yolks and whites were passed through a meat grinder to comminute, and the resultant material was dried in a current of air at about 70 C. In the series of diets in which cereal con-

* From the Yale University Laboratory of Physiological Chemistry.

1. Sherman, H. C.: Food Products, revised edition, 1924, chapter XIII. McCollum, E. V.: The Newer Knowledge of Nutrition, 1922, p. 403.
2. Rose, M. S.: J. Home Economics **17**: 372, 1925.
3. Adolph, W. H.: J. Home Economics **17**: 1, 1925.
4. Wu, H.: Chinese Soc. & Political Sc. Rev. **11**: 56, 1927.
5. Cowgill, G. R.; Jones, Margaret H.; Frisch, R. A., and Jackson, G. P.: Studies on the Effects of Abundant Cereal Intake: I. The Use of Cereals as the Chief Source of Calories, J. A. M. A. **89**: 1770 (Nov. 19) 1927.

stituted 93 per cent of the mixture, dried cooked egg yolk was used because the yolk is the more concentrated mixture of desired cereal supplementing nutrients. Cane molasses was chosen because of its high content of ash, the "Brer Rabbit" brand being employed. Fresh lettuce was selected to represent the uncooked vegetable portion of the ration.

Young albino rats weighing between 35 and 45 Gm. were employed as experimental animals. Each rat was caged separately in accordance with the technic followed in this laboratory and described elsewhere.[6]

Growth.—In the 65 per cent cereal series, best growth was obtained with the oatmeal, whole wheat and breakfast food diets; the yellow corn meal ration gave results almost as good. In all cases the growth was much better than the convention "normal" (Donaldson). In considering the records of the "corn" [1] group it should be borne in mind that the tests were not as prolonged as in the case of the other cereals. For reasons of convenience the animals were started on the experiment at a later date. If one considers the weights which these males attained after subsisting on the experimental ration for forty days, it becomes apparent that the rate of growth of these animals was only slightly inferior to that shown by the animals on the other diets.

The animals on the 93 per cent diets in all cases showed growth barely equal to "normal." In the case of yellow corn meal—corn [1]—the rate of growth was decidedly below "normal." This may doubtless be accounted for in part by the low concentration of protein in this ration.

Evidently even large proportions of cereals in the diet can be effectively supplemented with simple foods other than milk.

Skeletal Development; Rickets; Blood; Dietary Deficiencies.—No signs of rickets were observed. The costochondral junctions were examined as well as the epiphysial lines of the split humeri and femurs. Anemia was not observed. Erythrocyte counts all fell within the normal limits for the white rat.[7] Signs of faulty dentition or vitamin deficiencies did not develop. The rats on the 93 per cent rations were always somewhat thin, however, and lacked the glossy coat of hair so characteristic of well nourished animals.

Reproduction and Lactation.—In view of the successful growth attending the use of 80 per cent cereal diets, breeding trials were not systematically performed with the animals that received the lower amount of cereal (65 per cent).

Of the fifteen females on the 80 per cent cereal rations, only one failed to have a litter. Companions of this animal gave birth to young, proving that the male was potent. It is possible that rat 132 became pregnant only to suffer a resorption of the embryos. The peak in the curve suggests this.

The rates of growth of the young born to the females on these high-cereal diets indicate that these rations, while satisfactory for growth after the weaning period, may not be entirely ideal for the demands of lactation. Many of the young were markedly underweight when weaned, in contrast to the young of the females subsisting on "high cereal calory" diets of a different type discussed elsewhere.[5] The lower concentration of protein in the 80 per cent diets may account in part for these results. It is well recognized in the dairy industry that a relatively high plane of protein intake is necessary for heavy milk production.

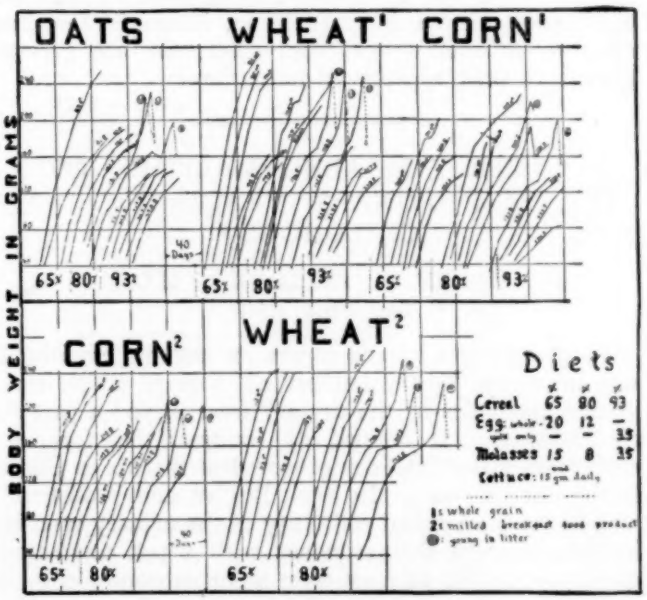
These only partially satisfactory results with 80 per cent cereal diets make it desirable to study the value of the 65 per cent cereal diets for lactation.

6. Smith, A. H.; Cowgill, G. R., and Croll, H. M.: J. Biol. Chem. 66: 15 (Nov.) 1925.
7. Jencks, Z.: Am. J. Physiol. 59: 240 (Feb.) 1922.

SUMMARY AND CONCLUSIONS

Diets consisting of whole-grain cereals and other cereal products 65 per cent, and such easily obtainable food materials as whole cooked egg 20 per cent, cane molasses 15 per cent, and a daily allowance of 15 Gm. of fresh lettuce sufficed to meet the nutritive demands of rapid growth in the white rat.

Similar diets in which the cereal constituted 80 per cent of the mixture, cooked whole egg 12 and molasses 8 per cent, respectively, together with a daily allowance of 15 Gm. of fresh lettuce promoted good to excellent growth, the limiting factor here apparently being the content of protein in the ration. Under these conditions corn meal did not yield as good results as oatmeal or whole wheat. The content of protein in the diet also seems to bear some relation to the ability of such mixtures to meet the demands of lactation.



Details of diets.

Extreme diets containing whole-grain cereal 93 per cent, egg yolk 3.5 and molasses 3.5 per cent, together with a daily allowance of 15 Gm. of fresh lettuce no longer meet the demands for rapid growth. The amount of protein in the ration seems to be at least one limiting factor, corn being quite definitely inferior to oatmeal and wheat.

It is possible to supplement whole-grain and other cereal products easily and satisfactorily for growth, reproduction and lactation with simple foods other than milk—egg, molasses and lettuce, for example—if the cereal does not represent more than 65 per cent of the mixture. At as high a level of intake as 80 per cent of cereal, the demands of growth may be met satisfactorily in similar fashion; lactation under such conditions may or may not be successful. When the same supplementary foods were used but making the whole-grain cereal constitute 93 per cent, egg yolk 3.5 and molasses 3.5 per cent, respectively, of the mixture, together with a daily allowance of lettuce as indicated, growth satisfactory according to current normal stand-

ards was obtained with oatmeal and whole wheat but not corn meal.

The combinations tried in this research are really only a few of the many possible ones. Additional experiments should be performed before any general conclusions are reached.

McCollum [1] has advanced the thesis that one may regard a demonstrated ability of a ration to support good growth in the young as at least one indication of the general nutritive excellence of the diet. A ration that is good for young animals is very likely to be good for adults as well. To what extent this is true is rather difficult to say, in view of the observations of Mattill and Conklin [8] that dried milk alone allows good growth in young rats up to at least the fiftieth day, but that thereafter the milk powder requires supplements.

In view of the excellent growth exhibited by the animals subsisting on the limited diets described in this paper, where cooked whole grain cereals furnished 65 and 80 per cent, respectively, of the total ration, and the fact that the diets were fed over lengthy periods corresponding roughly to at least the first ten years of man's life span, one is led to suspect that the possibilities in the way of successful nutrition by man on high cereal diets supplemented by relatively few but carefully selected foods other than milk are greater than have been appreciated heretofore.

CONGENITAL ABNORMALITIES OF THE URINARY TRACT IN CHILDHOOD *

HENRY F. HELMHOLZ, M.D.
ROCHESTER, MINN.

In preparing a recent report on chronic pyelitis, I was impressed by the number of cases in which congenital anomalies of the urinary tract played a part in the infection. It seemed of interest, therefore, to review such abnormalities observed at the Mayo Clinic in the last six years. In 1924, Bugbee and Wollstein,[1] writing on the surgical pathology of the urinary tract in infants, stressed the frequency with which congenital anomalies of the urinary tract were encountered in a series of 4,903 necropsies. Lesions were found in 117 cases, 101 of which were probably congenital. A clinical diagnosis of disease of the urinary tract was made before death in only two cases; in one of these congenital cystic kidney was diagnosed, in the other hydronephrosis. It is difficult to estimate the number of cases in which death was caused by disease of the urinary tract and the number in which the urinary lesion was observed accidentally at necropsy. Abdominal tumor and pyuria are probably the most prominent manifestations of congenital lesions of the urinary tract. Although there were nine cases of pyonephrosis in their series, it was not once recorded as the cause of death. Without the clinical history of the cases, it is impossible to state how frequently abdominal tumor was found. A percentage incidence of 2 for congenital anomalies of the urinary tract seems rather high, but even if the average for the general run of cases was only half this, a great number of such cases must be overlooked by pediatricians who see from 200 to 300 new-born infants yearly. My experience certainly does not confirm such an incidence.

The congenital abnormalities of the urinary tract that are discovered clinically are associated with pyuria, abdominal tumor or colic, and disturbance of micturition. Of seventy-two cases of urinary disturbances recently reported by Kretschmer,[2] seventeen were definitely congenital. Of these, ten were cases of hydronephrosis due to stricture; three were cases of contracture of the neck of the bladder; one was a case of posterior urethral obstruction, and three were cases of spina bifida. Beer [3] has reported a series of eighty-five cases of urinary disease in children, among which urethral stricture was found in two; contracted neck of the bladder in thirty; congenital diverticula in two, hydronephrosis in three. Hyman,[4] in 1918, reported thirty-eight cases of urinary disease, of which fourteen were probably congenital. Smith,[5] in 1924, described thirteen cases of disease of the kidney, among which there were two cases of hydronephrosis due to aberrant vessels; one case of double ureter; one of infantile kidney; two cases of bilateral hydronephrosis and hydro-ureter, and one case of hydro-ureter. Lowsley and Butterfield,[6] in a series of 100 cases studied urologically, noted twenty-nine cases of congenital anomaly, among which were five cases of stenosis of the meatus; two of malformation of the posterior urethra; two of hypospadias; one case of epispadias, and three cases of spina bifida.

The symptoms which bring these patients to the physician are pyuria or hematuria, or both, abdominal tumor, acute abdominal colic, or disturbed micturition. If any one of these symptoms is present but not marked, the lesion may be overlooked for many years and only accidentally discovered later in life, or at necropsy. The patient usually does not come to the physician until infection sets in, urination becomes difficult or involuntary, or pain arises from sudden retention due to a hydronephrotic or a pyonephrotic sac. In practically all cases of anomaly of the urinary tract, the danger of infection is increased because there is usually obstruction to the normal drainage of urine. The infection generally persists until the obstruction is removed. For this reason chronic infection of the urinary tract in infancy and childhood is of great importance in the recognition of congenital anomalies in the urinary tract. The pediatricians are not doing their duty when they continue to treat a patient with chronic pyuria for months, or even years, without calling in a urologist to rule out complicating abnormality of the urinary tract.

Recently, many writers have emphasized that chronic relapsing or recurring pyuria is frequently due to obstruction, often congenital, in the urinary tract. A definite regimen in the treatment of chronic pyelitis should be adopted, so that pediatricians may know when urologic consultation is indicated. I believe that the usual case of acute pyelitis tends toward spontaneous recovery, and when infection does not disappear follow-

8. Mattill, H. A., and Conklin, R. E.: Nutritive Qualities of Milk, with Special Reference to Reproduction in Albino Rat, J. Biol. Chem. **44**: 137 (Oct.) 1920.

* From the Section on Pediatrics, Mayo Clinic.

* Read before the Section on Diseases of Children at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

1. Bugbee, H. G., and Wollstein, Martha: Surgical Pathology of the Urinary Tract in Infants Based on a Review of Four Thousand Nine Hundred and Three Necropsies, J. A. M. A. **83**: 1887-1894 (Dec. 13) 1924.

2. Kretschmer, H. L.: Personal communication to the author.

3. Beer, Edwin: The Importance of the Recognition of Surgical Diseases in the Urinary Organs of Children, Internat. Clin. **3**: 272-287, 1923.

4. Hyman, Abraham: Surgical Diseases of the Urinary Tract in Children, with Special Reference to the Value of Cystoscopy, Am. J. Dis. Child. **15**: 116-131 (Feb.) 1918.

5. Smith, R. M.: Roentgen-Ray Examinations in Diseases of the Kidney, Am. J. Dis. Child. **28**: 678-693 (Dec.) 1924.

6. Lowsley, O. S., and Butterfield, P. M.: Urologic Conditions Among Children, J. Urol. **16**: 415-445 (Dec.) 1926.

ing the usual diuretic and alkaline treatment, there is focal infection elsewhere, marked lowering of bodily resistance, improper or insufficient treatment, or an anomaly of the urinary tract that interferes with proper drainage. The first three factors can be readily controlled and must be excluded before the fourth can be considered causative. At the outset it should be stated that by cure is meant not only symptomatic cure but that the catheterized urine must be free from bacteria on at least two occasions after treatment has been discontinued. As long as clinicians are satisfied with symptomatic rather than with bacteriologically controlled cures, progress will not be made in the recognition and treatment of these cases. Only by knowing when the infection cannot be eradicated by careful treatment is one justified in diagnosing a probable anomaly of the urinary tract, in the absence of other clinical signs.

In the diagnosis and treatment of chronic pyelitis, I[7] have followed a definite routine before exposing infants and children to the risk of an anesthetic, which is usually necessary for cystoscopic examination and pyelography. Children admitted to the clinic because of urinary complaints are given the usual routine examination, including careful examination of the suprapubic area for palpable bladder, and of the lumbar region for possible renal tumors or areas or tenderness. The urine is examined chemically and microscopically. Urine for culture is obtained by catheter from females, and from males by retracting the foreskin, washing the glans, and catching the urine in a sterile test tube after allowing a few cubic centimeters to pass. Cultures in brain broth and on blood agar are made from 0.5 cc. If infection is present, a roentgenogram of the kidneys, ureters and bladder is taken, and the phenolsulphonphthalein output, blood urea and residual urine are determined. If these tests are negative and the patient appears to be in good condition and is free from foci of infection, treatment is begun.

My reason for introducing this period of treatment before proceeding to urologic investigation is that in the last six years it was possible to clear up the infection in a number of cases of chronic pyuria which had apparently resisted treatment for months and years. In a series of eighty-three patients with chronic pyelitis, fifteen were cured by intensive treatment and did not require instrumentation. A few of the remaining sixty-eight patients did not remain for treatment, but in the others either the infection was not affected by therapeutic procedures or there were other symptoms that rendered complete urologic examination imperative. Eleven of the fifteen patients who were cured were treated for a period of less than two weeks.

My experience has shown that the most useful urinary antiseptic in chronic pyelitis of infancy and childhood is methenamine given with sufficient ammonium chloride to render the urine acid to a hydrogen ion concentration of from 5.5 to 5.0. A tablet containing 1 Gm. of ammonium chloride and 0.5 Gm. of methenamine may be given four times in twenty-four hours to a child aged 7 or 8 years. A child aged 2 years can take about half this dose of methenamine, and a child aged 1 year about one-fourth the dose. The dosage of methenamine may be increased every third day until a catheterized specimen of urine is sterile on culture. If the hydrogen ion concentration of the urine is about 5.5, 1 Gm. of methenamine four times a day is usually enough to sterilize the urine of a child aged from 6 to 14 years. It may be necessary to increase the dosage to 2 Gm. four times a day. If marked urinary frequency and urgency or hematuria indicate that the tolerance for the drug has been overstepped, it is discontinued, water is forced, and sodium bicarbonate is given in 1 Gm. doses every four hours for twenty-four hours. The presence of formaldehyde in the urine may cause slight frequency, but this is only an indication of the bactericidal character of the urine. The amount of methenamine necessary to render the urine bactericidal may be close to the amount which causes irritation and hematuria in some patients, so that when patients are receiving large doses of methenamine the urine must be controlled daily. Without administration of sufficient methenamine, however, it is impossible to sterilize the urine.

In cases of uncomplicated chronic pyelitis it has been possible to clear up the infection in a relatively short time, whereas in the same period only one case of pyuria associated with congenital anomaly of the urinary tract has been affected, and that only temporarily. Consequently, if after a period of from two to three weeks of intensive treatment the infection does not disappear, I believe that a cystoscopic examination should be carried out, the ureters catheterized, and a cystogram and pyelogram made. If, in addition to chronic pyuria, tumor, hematuria or colic is present, cystoscopy and pyelography should be carried out immediately without preliminary treatment.

Congenital Abnormalities of the Urinary Tract

Renal anomalies	
Ectopic kidney	1
Unilateral kidney	1
Hydronephrosis	14*
Polycystic kidney	1
Simple cyst of the kidney	1
Ureteral anomalies	
Duplication of ureters	3†
Dilated ureters	9
Left ureter opening into bladder sphincter	1
Urethral anomalies	
Posterior urethral stricture	4
Recto-urethral fistula	2
Bladder anomalies	
Neuromuscular dysfunction	22
Diverticulum	1
Exstrophy	34
Total	94

* Six of these cases also in other groups.
† In one case one ureter opened into the bladder and the other into the vagina.

It is surprising that one should be able in six years to see such a large number of congenital anomalies of the urinary tract as are shown in the table. Bugbee and Wollstein's series of cases of urinary anomaly found at necropsy without previous diagnosis of urinary disease would indicate that they are easily overlooked. If cases of pyriform tumor, often extending from the symphysis pubis to the umbilicus, have passed unrecognized for years, as has happened in a number of cases I have seen recently, it is not surprising that minor impairment is not noted.

Cases of congenital abnormality of the urinary tract may be divided into those that can be recognized by the usual physical examination and those in which special urologic examination is necessary. The largest group evident on physical examination is that of exstrophy of the bladder. Thirty-four cases have been observed since January, 1921. Of these, operation was performed in twenty-six cases; eight cases were

7. Helmholz, H. F.: Chronic Pyelitis in Infancy and Childhood, Wisconsin M. J. **26**: 189-195 (April) 1927.

unsuitable for operation. Transplantation of the ureters is advised only if there is complete control of the rectal sphincter, so that urine can be periodically passed from the rectum. There was only one death in the series. In this case a single-stage operation was performed, the two ureters being transplanted at the same time.

The second type of urinary abnormality recognized by physical examination is due to renal enlargement or misplacement, such as that caused by polycystic kidney, simple cyst of the kidney, or ectopic kidney. Simple cysts are rare; one such case is reported here:

Fig. 1.—Obstructed ureter producing hydronephrosis.

CASE 1.—A girl, aged 7½ months, was brought to the Mayo Clinic because of a tumor-like mass in the left side. The mother stated that the physician had palpated a mass in the left and upper part of the child's abdomen at birth, which he thought was the spleen. Five weeks before the child's admission, several physicians had examined her but had not made a definite diagnosis.

Physical examination showed a palpable circumscribed mass in the left renal region. Nothing abnormal otherwise was found. The urine was normal, as was the blood. A roentgenogram of the kidneys, ureters and bladder did not show anything unusual. Exploration revealed a cystic tumor, about 7.5 cm. in diameter, of the left kidney. The small amount of remaining renal tissue showed marked nephritis with fibrosis and dilatation of tubules. Left nephrectomy was performed. Convalescence was uneventful.

The third type of lesion that can be recognized by physical examination is complete, or almost complete, obstruction giving rise to hydronephrosis or distention of the bladder (fig. 1). Disappearance of tumors of the bladder after the passage of urine or catheterization will further demonstrate these cases. A unilateral lumbar tumor is indicative of obstruction in the ureters. If the tumor is bilateral, the obstruction may be in the ureters but probably is in the bladder or posterior urethra. A tumor is one of the commonest physical signs of congenital anomaly of the urinary tract and should always be looked for. The presence of residual urine will aid in establishing the diagnosis in a number of cases. Since my report [8] in 1926 of fifteen cases of neuromuscular dysfunction of the bladder, I have seen seven additional cases. Usually frequency and incontinence and inability to empty the bladder except by voluntary effort of the abdominal muscles are present. In nine of the twenty-two cases there was a tumor above the symphysis pubis which would disappear on catheterization. Practically all these patients suffered from severe pyuria. The most characteristic feature is the full appearance of the bladder in the cystogram taken after the patient has been told to void. Our last patient had a staphylococcal infection of the urine, which contained practically no pus. The report of a case follows. It illustrates the clinical condition and the extreme difficulty of treating this type of patient.

CASE 2.—A girl, aged 8 years, was brought to the Mayo Clinic because of pyuria which had been present for about a year and a half. She had had occasional attacks of pain in the left side, generally associated with a desire to urinate. The urine had been cloudy.

Physical examination was essentially negative. The urine contained pus, graded 2, and innumerable colon bacilli on culture. The phenolsulphonphthalein output was 45 per cent. The blood urea was 28 mg. for each hundred cubic centimeters. A roentgenogram of the kidneys, ureters and bladder showed spina bifida occulta of the first sacral vertebra. Pyelitis was diagnosed, and 0.5 Gm. of methanemine and 1 Gm. of ammonium chloride four times daily was started. In ten days the urine was sterile on culture. Medication was discontinued, but the following day the urine contained innumerable bacilli. Methenamine and ammonium chloride were resumed. In a week the urine was again sterile; but when medication was discontinued innumerable colon bacilli were found on culture. Medication was resumed, the dosage being increased. Since the urine continued to contain colon bacilli, cystoscopy was advised. The cystogram showed a small irregular outline of the bladder with marked regurgitation. The pelves and ureters were markedly dilated throughout (fig. 2). Atony of the urinary tract with bilateral hydro-ureter and pyelectasis was diagnosed.

The second group of cases is composed of those that can be recognized only by urologic examination, and is manifested in most instances by chronic pyuria. If the inflammatory process is bilateral as the result of obstruction, little can be done other than to relieve the obstruction. In unilateral involvement the most striking results can be achieved. In three cases of double ureters the kidney on the affected side was practically functionless, acting merely as a source of infection. Removal of the kidney and large ureters cured the patient. Unilateral hydronephrosis can be successfully treated in the same way. If the hydronephrosis is bilateral, the outlook is hopeless:

Fig. 2.—Neuromuscular dysfunction of the bladder; cord bladder.

CASE 3.—A boy, aged 15 years, was brought for examination because of partial urinary incontinence, which had been present since birth. Eight months previously his condition had been diagnosed as congenital stricture of both ureters with bilateral infected hydronephrosis. Suprapubic cystostomy was performed, the right ureteral orifice was fulgurated, and the left was moved a short distance from the original site. For the past two years he had suffered from pyelitis.

The phenolsulphonphthalein output was 15 per cent. The blood urea was 184 mg. for each hundred cubic centimeters.

8. Helmholz, H. F.: Neuromuscular Dysfunction of the Bladder as a Cause of Chronic Pyelitis in Childhood, Am. J. Dis. Child. 32: 682-691 (Nov.) 1926.

Cystoscopy revealed bilateral congenital hydro-ureters and hydronephrosis. The ureters were markedly tortuous, preventing the introduction of catheters beyond the lower third. The bladder was atonic.

Another case is of interest:

CASE 4.—A girl, aged 9 years, was found to have pyuria, which had been present for six or seven years. She had had frequent attacks of fever without localized pain. During these attacks there was constant dribbling. About two years previously, roentgen-ray examination had demonstrated an anomalous ureter opening into the vagina.

Physical examination was negative except for the double urethral orifice. The urine contained pus, graded 4. The phenolsulphonphthalein output was 60 per cent. The blood urea was 18 mg. Cystoscopy showed duplication of the right kidney with greatly dilated double ureters, that on the lower pelvis opening into the bladder and that on the upper pelvis opening into the vagina (fig. 3). At operation right hydronephrosis with tortuous dilated ureters was found. Right nephroureterectomy was performed.

The cases of posterior urethral stricture form a distinct group. In some the obstruction has been described as due to a valve extending out from the verumontanum. Excision of this valve relieves the condition. The four cases reported here were due to narrowing of the orifice. In one case, that of a male infant, aged 2½ years, an emergency suprapubic cystostomy was necessary to relieve acute complete obstruction. The prognosis in these cases is usually bad because of the injury that has resulted to the kidneys. Recto-urethral fistula is of importance because of infection in the urinary tract and the frequent development of megacolon.

SUMMARY

It is not merely desired to list a series of congenital anomalies of the urinary tract in childhood, but to emphasize that such cases are probably passing through one's hands constantly in apparently normal infants and children. Such anomalies can be detected by careful questioning in regard to urinary functions and symptoms, by careful examination of the renal and bladder areas, and by assuming that a patient with chronic pyelitis that cannot be cured in a relatively short period of intensive treatment is entitled to complete urologic examination. Only thus can such cases be reached before the entire renal parenchyma is destroyed because of continued urinary back-pressure and infection.

ABSTRACT OF DISCUSSION

DR. ISAAC A. ABT, Chicago: About twenty years ago, I saw my first case of kidney malformation and pyuria. The infant had a fused kidney which presented itself as a tumor in the median line of the abdomen. We soon discovered that the baby had pyuria. Very soon there were symptoms of chills and fever. Emaciation developed and the baby died. At the autopsy, we found that this malformed or horseshoe kidney was filled with minute abscesses, constituting a severe pyelonephritis. Later on, I found a number of children with persistent pyuria which, on investigation by urologists, proved to be associated with various kinds of malformations of the urinary organs. A year or so ago, I published results, similar to those which Dr. Helmholz presented, in children with enlarged, hypertrophied or dilated bladders and others with very markedly enlarged, dilated ureters and kidneys, all of these conditions associated with severe protracted pyuria, fever, pallor and emaciation. A number of them died; others are still under observation. It has been suggested that the malformations may be congenital or acquired, or due to neuromuscular dystrophy, a condition about which a number of authors have written, but the nature of which must be cleared up more carefully. Whether the lesion is in the spinal or sacral cord remains to be more carefully elucidated by further investigation. Whatever the cause may be, cases of chronic pyuria are frequently due to such malformations as enlarged, hypertrophied or dilated bladder, vesical diverticula or dilated ureters. The important point in all these cases is that whenever malformations occur, stasis sooner or later follows. Whenever urinary stasis occurs, eventually infection takes place, and whenever infection occurs there is pyuria with symptoms of general sepsis. The point to be learned from this presentation is that in every case of protracted pyuria with its attendant septic symptoms of urinary origin, a careful urologic examination should be made by a competent urologist.

DR. HERMON C. BUMPUS, JR., Rochester, Minn.: Most of the patients just reported on by Dr. Helmholz were examined by me from the urologic standpoint. It may be of interest to recall here certain observations made during these examinations. To examine a very young child cystoscopically involves certain immediate risks because of the necessity of using a general anesthetic, but more important are the potential hazards for the future welfare of the child as the result of traumatic lesions produced during such an examination. With the new instruments now at hand the risk in the female infant is reduced to a minimum, but in the male infant, with the smallest instruments now available, there is grave danger of causing sufficient trauma to produce a lifelong urethral stricture. I therefore feel very strongly against the practice of examining very young children by the cystoscope. An accurate diagnosis of pyelitis is surely of little benefit to an infant if he is to be left with a traumatic stricture of the urethra which must be dilated the remainder of his life. In the case of the aged and greatly debilitated patient, we are not justified in making an extensive cystoscopic examination unless an accurate diagnosis will result in a change of treatment or in the undertaking of an operation. I think that the same rule should apply to children. In this series on which Dr. Helmholz has reported, a thorough therapeutic test was made in every case before the child was subjected to cystoscopy. In other words, if after a reasonable length of time under the usual treatment the child does not respond, cystoscopy is undertaken to determine whether these poor results are caused by some congenital abnormality. Similarly, in the case of the child with the large abdominal tumor, as the general condition of the patient and the physical observations indicated operation, it did not seem justifiable to undertake the risk of traumatic injury to the urinary tract for the sake of making the preoperative diagnosis a little more accurate. It has recently become a fad in the urologic world to attribute all otherwise obscure and inexplainable abdominal pains to stricture of the ureter. We recently examined a child in whom (after a completely negative urologic examination had been established) bulbs had been passed up both ureters to rule out the possibility of strictures; these being found, this child of 4 was subjected to a series of dilations. The injury possible if such a practice becomes

Fig. 3.—Duplication of ureters; anomalous ureter opening into vagina.

general seems limitless. Congenital strictures of the urethra are encountered fairly often, as the list of cases just reported indicates, and by proper dilation very satisfactory results are obtained. Strictures of the ureter are rare, but if they exist are easily demonstrable by the ureterogram, and those that cannot be so demonstrated are not found even after careful postmortem examination. The incidence of congenital urologic defects, the result of faulty neurologic development, are many and interesting. They vary from slight disturbance secondary to spina bifida occulta to complete paralysis of the musculature of the bladder as in the case Dr. Helmholz has reported. In such conditions the importance of caring for the residual urine deserves emphasis. We have found no method so efficacious as teaching the mother, or the child if he is old enough, to use a catheter regularly, not permitting the bladder to go for more than four hours without emptying. If the point is emphasized that lubrication is as important as sterilization in the use of the catheter, complications in the way of infection disappear. Once this technic is acquired there is such rapid and marked improvement in the general condition of the patient that the continuation of regular catheterization becomes insured.

THE CARDIOVASCULAR RESPONSE IN EXPERIMENTAL NEPHRITIS*

F. W. HARTMAN, M.D.
ADOLPH BOLLIGER, PH.D.
AND
H. P. DOUB, M.D.
DETROIT

The problem of hypertension and hypertrophy of the heart as related to renal disease is one that has claimed an increasing amount of clinical and experimental research. Knowledge of the subject has been broadened but unfortunately has produced two directly opposite and apparently irreconcilable views. These are typified by the recently expressed opinions of Kylin [1] on the one hand, who says, "All attempts to explain any

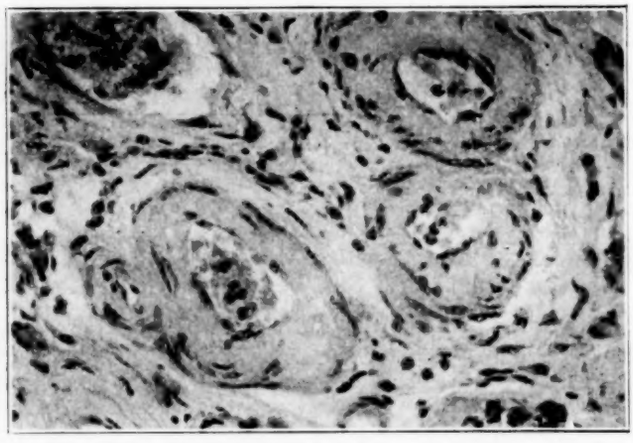


Fig. 1.—Sclerosis of arterioles.

hypertension secondary to kidney insufficiency are a failure," and of Romberg,[2] on the other, who says, "In every case where the maximum pressure is constantly 160 or higher, kidney disease may be the cause irrespective of the diastolic pressure." Fahr's [3] view is similar to that of Romberg,[2] and in explanation he says that hypertension is a compensatory mechanism which prevents or diminishes kidney symptoms but that kidney injury does exist. It is further pointed out that it is necessary to know not only that there are kidney changes but also what part of the kidney is altered, and that there is a parallelism between the amount of injury in the kidney arterioles and the height of the blood pressure. These opinions of Romberg [2] and Fahr [3] are supported by the observations of Herxheimer,[4] Evans [5] and Loehlein.[6]

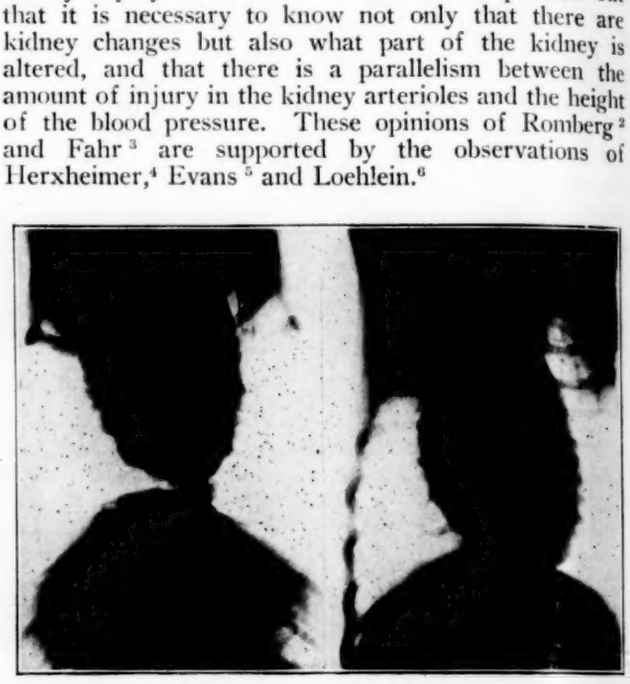


Fig. 2.—Normal heart at left, and heart of nephritic animal of group C at the right.

The chief support for Kylin's [1] opinion is found in the large group of so-called essential hypertensions in which no kidney changes are found, as reported by himself, Allbutt,[7] Lee,[8] von Monakow [9] and Ophuls.[10] Further confirmation is added in the work of Jores [11] and Moschcowitz,[12] who point out that when sclerosis of the renal vessels is found, it is a part only of generalized arteriolar sclerosis. In reviewing this work, Jaffe [13] tersely remarks, "More frequently, however, high blood pressure and hypertrophy of the heart are associated with diseases of the kidneys," and in his conclusions, says: "There are many cases with an isolated sclerosis of the small arteries of the kidney. If other organs are also affected, the process in the kidney is the most advanced one."

Without a comprehensive review of the literature on the relation of hypertension and hypertrophy of the heart to renal disease, and without giving a verdict based on the maze of conflicting evidence on this subject, objective data obtained in a group of dogs with experimental nephritis are submitted. The presentation is made at this time not because the work is completed but because it is felt that some of the difficulties and divergence of opinions have come about through lack of a satisfactory experimental approach to the subject.

The experimental nephritis used in this work is that resulting from the application of high voltage roentgen

* From the departments of pathology and roentgenology, Henry Ford Hospital.

* Read before the Section on Pathology and Physiology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

1. Kylin, E.: Zentralbl. f. inn. Med. **42**: 417 (May 28) 1921.
2. Romberg, E.: Arch. f. Augenh. **90**: 252-267, 1921-1922.
3. Fahr: Handbuch der speziellen Pathologischen Anatomie and Histologie, Berlin **6**, part 1, 1925.
4. Herxheimer: Zentralbl. f. allg. Path. **33**: 111, 1923, supp.
5. Evans, G.: Quart. J. Med. **14**: 215 (April) 1921.
6. Loehlein: Beitr. z. Path. Anat. u. z. allg. Path. **63**: 570, 1917.
7. Albutt, T. C.: Diseases of the Arteries, Including Angina Pectoris, London, 1915.
8. Lee, R. I.: Pathologic Findings in Hypertension, J. A. M. A. **57**: 1179 (Oct. 7) 1911.
9. Von Monakow, P.: Deutsches Arch. f. klin. Med. **133**: 129 (Aug.) 1920.
10. Ophuls, William: Subacute and Chronic Nephritis as Found in One Thousand Unselected Necropsies, Arch. Int. Med. **9**: 156 (Feb.) 1912.
11. Jores: Deutsches Arch. f. klin. Med. **94**: 1, 1908.
12. Moschcowitz, Eli: Am. J. M. Sc. **172**: 469 (Oct.) 1926.
13. Jaffe, R. H.: Am. J. M. Sc. **169**: 88 (Jan.) 1925.

rays to the kidney. In a communication [14] to this section last year, functional studies on a group of these nephritic dogs were presented with the statement that, in a series observed over long periods, hypertension and cardiac hypertrophy were noted.

During the last year, this phase of the problem has been studied intensively, four groups of animals being used in addition to those on which the work reported was based. In the first group (A) are seven animals that were all irradiated through the abdominal wall over areas averaging 10 by 10 cm. square. Regarding this procedure, the objection arises that in irradiating through the abdominal wall over a rather large area, sclerosis is produced not only in the kidney but also in the abdominal organs, and sufficient changes may be produced in the suprarenal lying in the area of irradiation to affect the vascular system in some way.

Groups B and C were to obviate the first objection and group D the second.

Group B, consisting of two animals, was irradiated through the abdominal wall on one side only, and then the opposite kidney was removed in order that the amount of affected tissue would be reduced to a minimum but the animal would still present a severe kidney insufficiency.

In group C, comprising three animals, one kidney was brought to the surface; a lead plate 5 mm. in thickness was placed beneath it, and it was irradiated directly after a nephrectomy had been done on the opposite side. In this group, the animals were completely protected with the exception of the exposed kidney; yet a satisfactory insufficiency was readily produced.

In group D one kidney and the opposite suprarenal were removed. Then the remaining kidney was irradiated through the abdominal wall. Here the effort was made to cut the irradiation down to a minimum and to leave one suprarenal unaffected by the irradiation.

Fig. 3.—Cross section of heart from animal in group A, in which the heart weight-body weight ratio was 0.011.

Group E, consisting of four dogs, was added because of changes noted in the heart when function was suddenly cut down, as in groups B and C when the good kidney was surgically removed. In these, one kidney was brought up and irradiated directly. Then two months later, the ureter on the opposite side was ligated.

METHODS

Six methods of approach have been used in this study of the cardiovascular response:

1. Anatomic studies of the kidneys, gross and microscopic.
2. Anatomic studies of the hearts, gross and microscopic.
3. Anatomic studies of other organs, gross and microscopic.
4. Injection and corrosion studies of the kidneys.
5. Blood pressure observations by the auscultative method and tracings of the pressure with the Jaquet-Huerthle manometer.
6. Roentgenologic studies with 6 foot plates, comparing the relative size and shape of the heart in normal and nephritic animals.
7. Electrocardiographic studies taken throughout the course of the disease, with special reference to changes during the terminal stages and after sudden reduction in function.

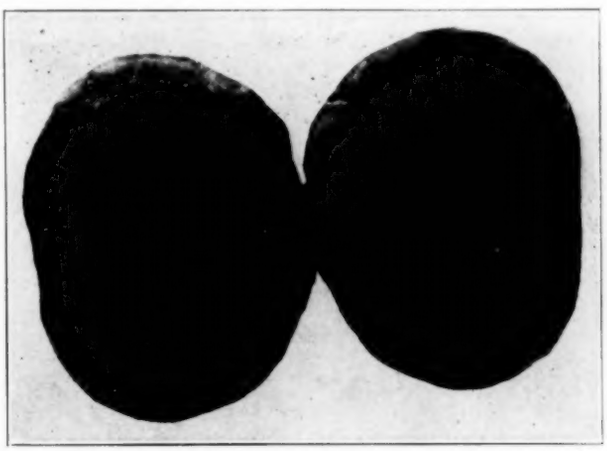


Fig. 4.—Heart from animal in group B whose heart weight-body weight ratio was 0.01.

The anatomic studies of the irradiated kidneys in all groups are comparable. The changes are those described in earlier communications [15]—briefly, thickening of the capsule, contraction from one-half to one-tenth the normal size, a cortical surface typically light reddish brown and firm and fibrous, being marked by small gray areas of scarring. On section, the cortex is thinned to 3 or 5 mm., and is firm, fibrous and devoid of the usual architecture. In group E the tissue is softer and more elastic and on section is often edematous and semitranslucent. Microscopically, the changes are characterized by widespread fibrous replacement of the tubular portions in the first four groups and almost complete replacement in the last. The arteries are all thick walled, including the renal. The lumina are proportionately narrow, and in the case of the arterioles are often occluded, as in figure 1. The glomerular tufts are in many instances atrophic or hyalinized, while others are relatively well preserved. The capsular space may be empty and of normal size, or greatly dilated and containing homogeneous pink staining material or blue staining salt deposits. Bowman's capsule is sclerotic and sparsely nucleated.

The hearts of those animals in the first four groups coming to autopsy were enlarged when compared with the normal. Before removal the diameter at the base was about the same as the normal, but it was elongated and the tip of the left ventricle was pointed (fig. 2). When the heart is opened the right side is usually dilated, the ventricle measuring from 1 to 3 mm. in thickness. In contrast, the left ventricle presents a wall ranging from 12 mm. to 20 mm. and the lumen is relatively small, a hypertrophy of the concentric type, as shown in figure 3. Weights were taken only on the dissected heart and averaged well above recorded average normals. Two animals in group A gave heart

14. Hartman, F. W.; Bolliger, Adolph; and Doub, H. P.: Functional Studies Throughout the Course of Roentgen-Ray Nephritis in Dogs, J. A. M. A. **88**: 139 (Jan. 15) 1927.

15. Hartman, Bolliger and Doub (footnote 14): Am. J. M. Sc. **172**: 487 (Oct.) 1926.

weight-body weight ratios of 0.009 and 0.011, respectively. The two animals in group B gave ratios of 0.01 and 0.008 (fig. 4). The only animal in group C examined post mortem had a ratio of 0.0088 (fig. 5), while a single autopsy in group D yielded a ratio of 0.0082. Contrasted with these, four animals in group E, left with one intact kidney until thrown into acute uremia by ligation of the ureter, showed a ratio of

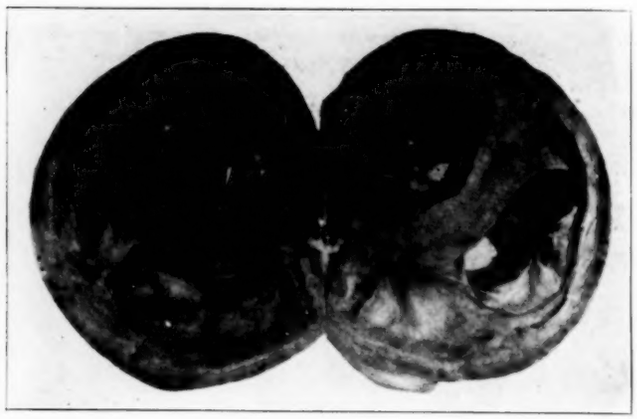


Fig. 5.—Heart of animal in group C whose heart weight-body weight ratio was 0.0088.

0.0063. These figures are more significant in the light of Herrmann's[16] work, in which an average ratio of 0.00798 was found in 200 normal dogs examined. Eyster, Meek and Hodges[17] found that the average ratio in twenty dogs with experimental aortic regurgitation was 0.00859. Herrmann's[16] average ratio in seventy dogs with experimental hypertrophy was 0.01053.

After removal of the kidneys in certain animals representing the five different groups, the artery was attached to a pressure bottle through a cannula and washed with physiologic sodium chloride solution.

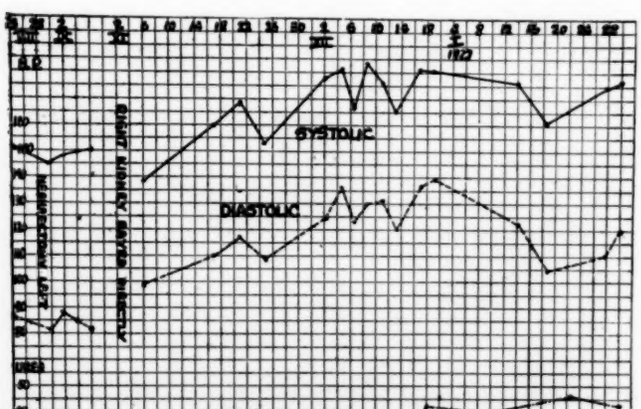


Fig. 6.—Blood pressure readings taken by auscultation method charted with blood urea from animal in group C.

Following this, thin celloidin followed by heavy celloidin solutions dyed with alkanin were injected into the artery. The results varied from the normal, which showed a cortex ranging from 4 to 8 mm. filled with celloidin casts and bearing abundant glomerular tufts, to the directly exposed kidney taken from animals in group E, in which the blood vessels were greatly decreased in number and only a glomerular tuft here and there was seen. These corrosion experiments demonstrated better than histologic sections the extensive sclerosis and endarteritis of the small arterioles throughout the cortex and also the widespread, in many cases almost complete, absence of functioning glomeruli.

Studies of the spleen, pancreas, ovary and suprarenals have been reported.[18] Here some sclerosis was noted after exposure to irradiation. However, in groups B and C the exposure of organs other than one kidney was reduced to a minimum, and in groups C and E all other organs were protected. In the entire series of animals the sclerosis seen in the kidney vessels was more marked than in other organs.

Blood pressure readings were made by the auscultation method, with pressure cuff and mercury manometer, and by cannula inserted into the femoral artery and connected with mercury and Jaquet-Huerthle manometers. The records of the two methods are consistent,

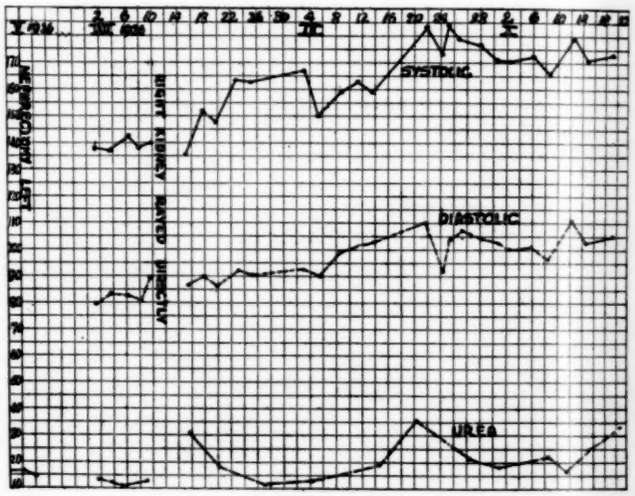


Fig. 7.—Blood pressure curve from animal in group C charted with blood urea. Readings were by the auscultation method.

but inherent difficulties in both were great. In the first place, there is such a wide range of variation in the dog that normals must be established for each. Secondly, long periods of training are required to get proper cooperation on the part of the animal, and then a spasmodic quivering is noted, especially in the nephritic dog, which must interfere with obtaining true values. Figures 6 and 7 illustrate the general trend of auscultatory readings on systolic and diastolic pressure in the individual animals. Figure 8 shows the maximum normal readings and the maximum readings after the nephritis was established. The direct cannula reading on the mercury and Jaquet-Huerthle manometers averages about the same as the auscultation readings, and when both were taken simultaneously the values were comparable. These records (figs. 9 and 10) demonstrate a consistent elevation of blood pressure in the nephritic animal but one that is often difficult to correlate with the apparent kidney injury. Further confirmation of increased systolic and diastolic blood pressures are found in the hypertrophy of the left ventricle of the heart. It is necessary to mention also

16. Herrmann, G. R.: Am. Heart J. **1**: 485 (April) 1926.
17. Eyster, J. A. E.; Meek, W. J., and Hodges, F. J.: Cardiac Changes Subsequent to Experimental Aortic Lesions, Arch. Int. Med. **39**: 536 (April) 1927.
18. Doub, H. P.; Bolliger, Adolph; and Hartman, F. W.: Radiol. **8**: 142 (Feb.) 1927.

that during all these experiments the animals were kept in close confinement, which would militate against hypertrophy of the heart.

In order to get additional information about the behavior of the heart of nephritic animals, electrocardiograms were taken in a number of animals throughout the course of the disease. From clinical experience, one would expect left ventricular preponderance in many of these hypertrophic hearts in which a marked thickening of the left ventricular wall is seen at autopsy. In our series, we obtained left ventricular preponderance only three times. This is a small percentage, but, comparing our results with previous experimental work on hypertrophy of the heart in dogs, it may be said that Herrmann,[16] in a series of seventy dogs with aortic regurgitation and hypertrophy of the left ventricle, found only one dog showing left preponderance. This occurred in a dog showing the greatest relative hypertrophy of the series. Eyster and his co-workers [17] did not obtain any left ventricular preponderance in fifteen animals with aortic regurgitation. Left ventricular preponderance appears in the later part of the disease

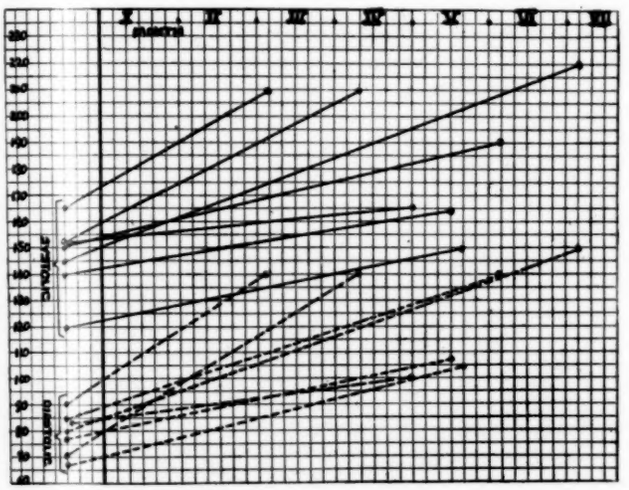


Fig. 8.—Maximum blood pressure changes with production of the nephritis in a composite group. Readings are by the auscultation method.

when hypertrophy is already very well established. In one instance left ventricular preponderance was absent eight months after treatment, but two months later it appeared (fig. 11). In two other animals, left ventricular preponderance was noted six months and twelve months after the first irradiation. Other electrocardiographic changes during the course of the disease are markedly inverted T waves in almost all leads, or the T waves may be only inverted in lead 1. The Q waves are sometimes very large in lead 1. In leads 2 and 3 the T and P waves are sometimes large. If the markedly inverted T waves are considered evidence of generalized myocardial injury, the toxic influence of chronic interstitial nephritis on the heart could easily be demonstrated in a large number of animals; but since normal dogs are more apt to have inverted T waves than human beings, other evidence would have to be produced to prove this point. Some of the hearts become quite irregular in the late stages. Sinus arrhythmia and ventricular extrasystoles were observed besides acutely inverted T waves in all leads (fig. 12).

The electrocardiogram in uremia was studied in four dogs of group E. These were animals in which the left kidney had been brought to the surface, irradiated directly with a massive dose and then replaced, and in which, about two months later the opposite ureter had been ligated. As pointed out previously, a marked oliguria ensued with all the symptoms of uremia. Electrocardiograms taken before the removal of the good kidney showed that all four dogs had normal tracings. After ligation, a picture not quite similar was seen in the four dogs. The day after operation,

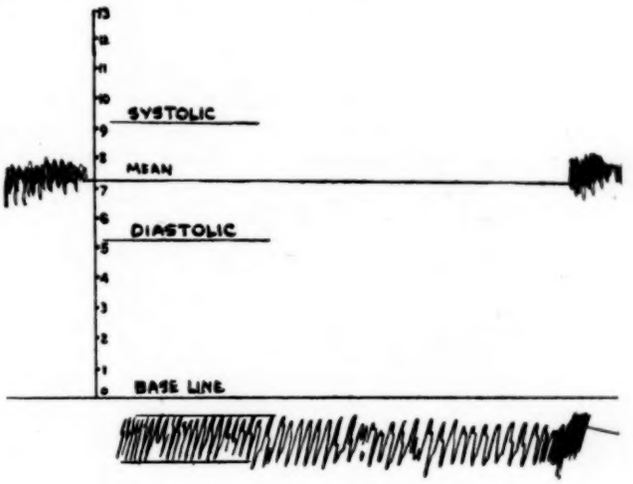


Fig. 9.—Blood pressure readings with mercury and Jaquet-Huerthle manometers from cannula within the femoral artery.

one showed markedly inverted T waves in leads 1 and 2. P waves in lead 1 were hardly visible, while the P-R interval in leads 2 and 3 was larger (0.1 mm.) than it was before operation. Heart rhythm was irregular and slow, and slight left ventricular preponderance was seen. Two days after operation, the bradycardia was still more marked. T waves were still acutely inverted in leads 2 and 3 and heart rhythm was irregular, more

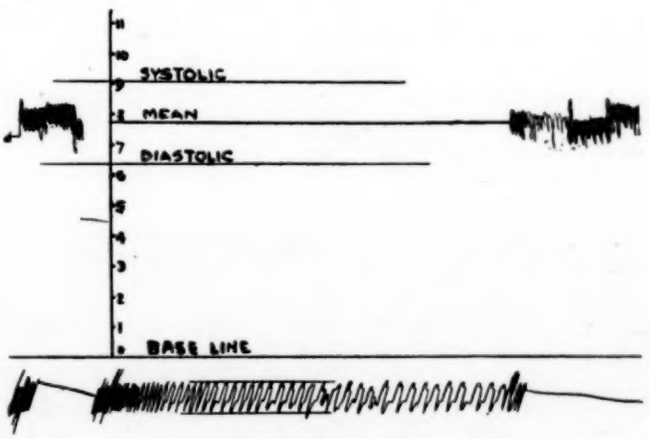


Fig. 10.—Blood pressure readings ascertained in same manner as in figure 9.

so than on the previous day (fig. 13). Thirty hours later, the animal died in coma.

Another animal showed, two days after operation, the same bradycardia and sinus arrhythmia as the first, but the T waves were not inverted in lead 2. Four days after operation, marked tachycardia was seen, the rate being about 300 a minute. T waves were markedly inverted, as shown in figure 14. These electrocardio-

graphic studies might be compared with similar studies by Wood and White [19] on human beings in uremia and during chronic nephritis. Like these authors, we are not able to make out a consistent alteration in electrocardiograms in nephritis and in uremia.

COMMENT

The lesion produced by irradiation of the kidney either directly or through the abdominal wall is a combined interstitial and vascular nephritis with sclerosed and obliterated arterioles, hyalinization of the glomeruli and replacement of the tubules by fibrous tissue. These changes are brought out in a striking way through injection and corrosion. Consistent increases of diastolic and systolic blood pressure, as recorded by direct and auscultation methods with the Jaquet-Huerthle and mercury manometers, follows the production of the

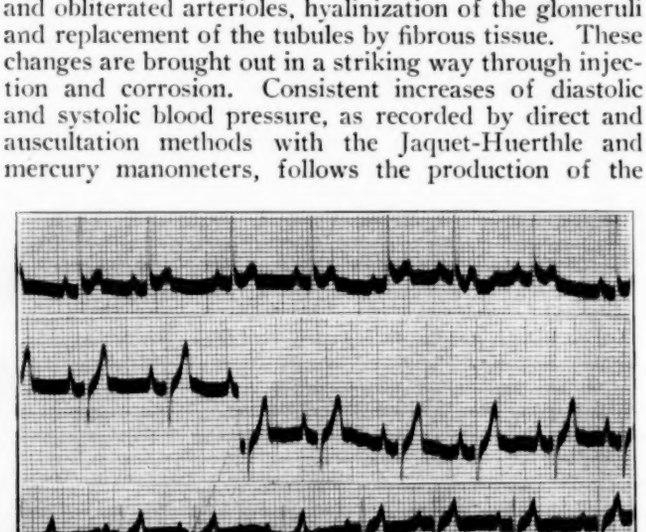


Fig. 11.—Electrocardiograhic tracing from animal in group A with advanced nephritis of eleven months' duration, showing left ventricular preponderance.

nephritis in periods varying from three to ten months in those animals in which the kidney alone was exposed to the roentgen-ray as well as in those which had more or less other tissue irradiated at the same time. These readings are variable from day to day, but as a group there is a definite upward trend as recorded in the composite curves. Directly related to the kidney lesion is a response on the part of the heart manifested by concentric hypertrophy of the left ventricle, an increase in the body weight-heart weight ratio and, occasionally, left ventricular preponderance in the electrocardio-

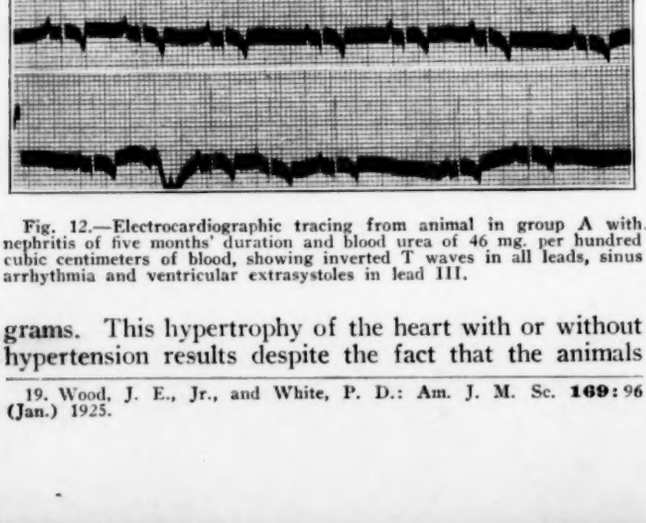


Fig. 12.—Electrocardiographic tracing from animal in group A with nephritis of five months' duration and blood urea of 46 mg. per hundred cubic centimeters of blood, showing inverted T waves in all leads, sinus arrhythmia and ventricular extrasystoles in lead III.

grams. This hypertrophy of the heart with or without hypertension results despite the fact that the animals are kept in close confinement throughout the course of the disease. Changes in the electrocardiograms were noted in the terminal stages, especially when this terminal stage was suddenly induced by ligation of the

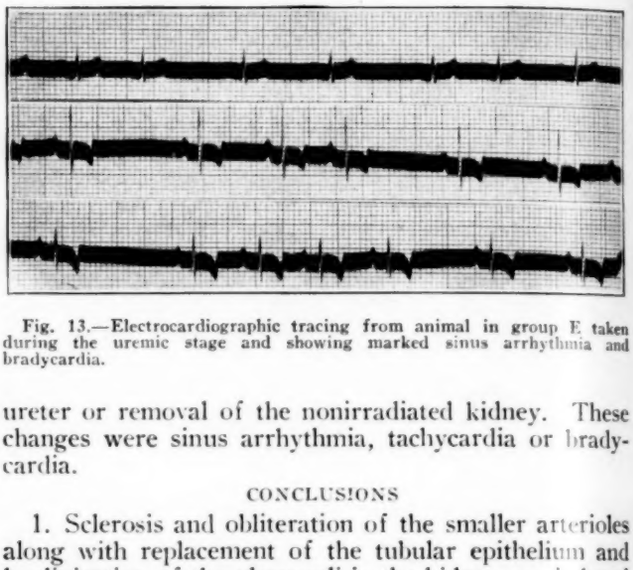


Fig. 13.—Electrocardiographic tracing from animal in group E taken during the uremic stage and showing marked sinus arrhythmia and bradycardia.

ureter or removal of the nonirradiated kidney. These changes were sinus arrhythmia, tachycardia or bradycardia.

CONCLUSIONS

1. Sclerosis and obliteration of the smaller arterioles along with replacement of the tubular epithelium and hyalinization of the glomeruli in the kidney are induced by deep irradiation.

2. Hypertrophy of the left ventricle of the heart and hypertension follow the induction of such a lesion in the kidney.

3. These experimental data tend to sustain the contention of Romberg, Fahr and others that the kidney may be directly responsible for a certain group of cases of cardiac hypertrophy and hypertension.

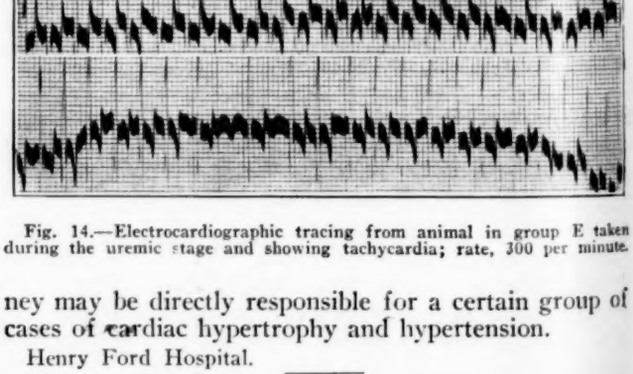


Fig. 14.—Electrocardiographic tracing from animal in group E taken during the uremic stage and showing tachycardia; rate, 300 per minute.

Henry Ford Hospital.

ABSTRACT OF DISCUSSION

DR. J. W. SHERRILL, La Jolla, Calif.: The lesion produced by the roentgen ray is apparently a profound one. Harm is done to more than 80 per cent of the kidney tissue. So far as is known, renal insufficiency of any degree cannot occur until that amount of kidney tissue is removed. Our results are quite different from those which Dr. Hartman and his associates report. I think that it is questionable whether we should term this change nephritis. The change we see is not strictly that of nephritis. It is more a fibrosis. The striking feature is the good condition in which most of the glomeruli remain. When large portions of kidney tissue have been removed by surgical means, I have never been able to detect true nephritis, and certainly not arteriosclerosis. I have not been able to note any definite changes in the eye-

19. Wood, J. E., Jr., and White, P. D.: Am. J. M. Sc. **169**: 96 (Jan.) 1925.

grounds with the ophthalmoscope or to produce hypertension or hypertrophy of the heart. In two cases in which large portions of the kidney tissue were removed, we have found a definite elevation of blood pressure, with cardiac hypertrophy. Our work has been quite different from that of Cole. He found definite increase in blood pressure, provided a small amount of kidney tissue was left, or placed either into the peritoneal cavity or under the skin. We have not been able to verify these observations. We shall have to be a little careful about the changes we mention so far as hypertrophy is concerned.

DR. FRANK W. HARTMAN, Detroit: The immediate effect is an inflammatory effect. It is characterized by round wandering cells, and even polymorphonuclear infiltration. I defy anybody to put one of these dogs' kidneys under the microscope alongside that from a human being with interstitial nephritis and tell which was the dog's or which was the man's. It is impossible. We have tried it. We found that in these sclerotic kidneys only the main arterial tree is preserved; there is no cortex to the kidney. The glomeruli are all gone and there is no thickness to the cortex. In other words, although the glomerular tufts may be seen in the microscopic sections, they have no vascular connection and they do not function. This is demonstrated also when one kidney is irradiated directly, and the other kidney is allowed to assume the function of both kidneys over a period of two months. Then, when we tie the ureter of that kidney, we find that the irradiated kidney produces not more than 5 cc. of urine in twenty-four hours, and the animal usually dies of uremia on the third or fourth day. The fact that increased blood pressure has not been produced by excision, we feel may be partly due to the fact that the animals cannot be followed long enough. These animals must be followed for three or even more months. As to the standards for hypertrophy of the heart, we have a large series of animals in which this heart weight-body rate ratio has been preserved because we are studying not only this group of nephritic dogs but also a large number of dogs which are being irradiated directly over the heart.

HELIOTHERAPY IN GENITO-URINARY TUBERCULOSIS *

W. G. SHULTZ, M.D.
TUCSON, ARIZ.

If definitely proved unilateral renal tuberculosis, in which the universally accepted treatment is surgical, is excluded from consideration, there is left a large percentage of cases of genito-urinary tuberculosis for which some treatment that offers promise of palliation or clinical relief and hope for an arrest or cure may be sought. It is now widely known among both the profession and the general public that heliotherapy stands out prominently as offering that promise or hope. In fact, this is so well known that I have seen patient after patient suffering from both pulmonary and extrapulmonary tuberculosis, who has been advised by the home physician to come to Tucson, get out in the open, take plenty of fresh air and an abundance of rich food, get lots of sunshine, and stay away from physicians unless something develops which requires medical attention. It is not at all uncommon to see patients who in two weeks' time have increased their interval of exposure up to two hours at the time of the day when the actinic rays are most intense. It is needless to add that in a large percentage of these cases something soon develops, but too often the patient, instead of seeking proper advice, either continues the treatment to his inevitable undoing or, becoming discouraged, loses faith in and discontinues what is perhaps his only hope of successfully combating his disease. The number of these cannot be known, but it must be very large, and it is my personal experience with such patients that motivates this paper.

* Read before the Section on Urology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C. May 19, 1927.

PRINCIPLES OF HELIOTHERAPY

Heliotherapy, by which term I mean sunlight therapy, has become widely known and generally used in these cases; therefore a thorough study should be made of its application, especially since it gives hope of successfully increasing the incidence of clinical cures. Time will not permit a detailed consideration, but there are certain outstanding features of heliotherapy which have proved valuable to various workers in this field, and which it is important to consider: The intensity of ultraviolet rays is definitely affected by seasonal variation, being more intense during the summer months, with the maximum intensity occurring in July. Varying with location, ultraviolet energy may be twenty times as intense in summer as in winter, and one summer day with dry air may have as much ultraviolet radiation as a whole month when the moisture of the air is increased. Winter sun is poor in ultraviolet rays, but their intensity diminishes less by seasonal change at high altitudes than at low, and the nearer one approaches the equator, the less seasonal fluctuation in the intensity is noted, a larger quantity being available throughout a greater part of the year. When the sun is only partly obscured by haze and on days that approach cloud formation, or when the sky is lightly covered by thin white clouds, greater actinic ray intensity occurs, and even on certain days when the sun is hidden, the light may be rich in ultraviolet rays and very useful for treatment. The intensity of the ultraviolet rays generally reaches its maximum between 10 a. m. and 2 p. m., and the shorter wavelength rays are most abundant. Reflection plays a relatively important rôle in the intensity of ultraviolet rays and, according to the locality, adds considerably to the dosage. Is it not therefore logical to assume that to obtain the best results the radiation should be in a known and constantly regulated dosage?

These observations suggest the advisability of some means of accurately measuring the ultraviolet rays in the locality in which the treatment is being carried out. This necessity has been met in Tucson by the installation, last January, of a radiometer at the Desert Sanatorium. By this means, it will be possible to give these patients practically the same dosage of ultraviolet ray therapy on any day of the year, if cloudy days, of which there are from eighteen to thirty each year, are excluded. Now that instruments of precision for measuring dosage are available, it is to be hoped that the work of Hasselbach in calculating the absorption indexes of the human skin, and the studies of Sheard and Brown on the spectrophotometric analysis of the color of the skin, will stimulate further research which will be an aid to us in accurately determining the degree of individual response to this form of therapy.

NECESSITY FOR INDIVIDUALIZATION

Having, then, an accurate means of determining how much of the therapeutic principle is available each day or part of a day, we must consider first the individual case, with regard to the general physical condition, and the presence of such pathologic manifestations as heart

lesions, arteriosclerosis and toxic nephritis, with especial attention to the question of pulmonary tuberculosis, and secondly the perplexingly different manner in which these patients react to sunlight. That heliotherapy is distinctly contraindicated, and may do harm in certain types of pulmonary tuberculosis, has been most definitely proved by certain workers of prominence in this field, among whom is Dr. S. H. Watson,[1] who has compiled a classification of these types. This I find to be a most important consideration in my locality because of the large percentage of patients in whom active pulmonary tuberculosis is found to be present, and most of whom have come to Tucson because of it. Suffice it to say, then, that these patients should be given a careful chest examination and should be accurately classified before one proceeds with treatment. Their reactions to heliotherapy must also be tested. That this is most variable readily suggests the necessity for individualization and the impossibility of laying down certain definite schemes to be adhered to or followed in any except the most tentative manner.

PIGMENTATION

It has been shown by carefully studying the effects of actinic rays on the minute structures of the skin that overdosage will produce degeneration of the prickle cells associated with an accumulation of erythrocytes and leukocytes in the blood vessels of the irradiated area, dilatation of the capillaries, stasis, formation of leukocytic thrombi, and exudation of white blood cells. While the proper dosage of light for the many forms and stages of tuberculosis has not yet been satisfactorily established, it is well to remember that a small dose will stimulate the tissues exposed, and that if a safe dose is exceeded, healthy tissue may be overstimulated or even destroyed. Certain substances have been rendered antirachitic by exposure to ultraviolet rays and subsequently have been inactivated by excessive exposures to the same ray, and it has been shown that, with a constant moderate dose, the bactericidal properties of blood in man could be increased, while an overdose would cause this effect to be lost. Pigment absorbs visible as well as ultraviolet radiations and has a marked influence on temperature and temperature regulation, so that the greater the degree of pigmentation that exists, the more readily the body absorbs and radiates heat. Pigment, by preventing the penetration of the longer rays as well as the longer ultraviolet rays (rays above 290 millimicrons), is a source of protection to the body. The capacity for the production of pigment and the degree of pigmentation is very variable with individuals even of the same classification; but, in general, the fairer the patient, the more difficult it is to obtain pigmentation. Darker persons pigment more readily and to a much greater degree, tolerate more prolonged exposures to light, and withstand heat and cold more easily. It has been observed that extrapulmonary tuberculosis occurs more frequently in persons who do not pigment, and that those with marked pigmentation improve much more rapidly. While the number of persons in my series of cases who did not pigment has been quite low, and sunlight therapy was therefore more difficult of application, improvement seemed to follow its use in quite the same extent as in those who did pigment, but the application required more careful supervision.

1. Watson, S. H.: The Use and Abuse of Heliotherapy in Tuberculosis, J. A. M. A. **87**: 1026 (Sept 25) 1926.

DIET

The importance of careful regulation of diet in these cases cannot be stressed too much. The tendency to overstuff persons with tuberculosis and subject them to forced feeding is as tenacious and fixed in the minds of the laity and of many physicians as is superstition in the negro race. Diets high in protein content, so popular in tuberculosis during the past and unfortunately too much so even now, have, as a result of their metabolic end-products, produced inestimable injury to the kidneys, particularly because of the tendency of tubercle toxin to irritate the kidney. Simply to outline the essentials for a proper diet in these cases is all that is within the scope of this paper; details may be obtained from any good textbook on diet. Food should be sufficiently bulky to prevent intestinal stasis; it should supply large quantities of calcium and iron salts, and should be sufficiently well balanced to afford plenty of nourishment without imposing a burden of elimination on the kidneys. Numerous investigators have shown that the feeding of irradiated cod liver oil will influence the storage of calcium and phosphorus by providing something which makes the metabolism of these constituents more efficient, causing the organism to operate with increased economy and conservation, even though the food contents are low in these important constituents. That ultraviolet irradiation definitely influences the metabolism of calcium suggests heliotherapy as an important factor in these cases, and also the fact that ultraviolet rays hasten the use of materials within the cells stimulating growth, accelerating the life cycle, and therefore hastening death, necessitates their use intelligently.

Results of Heliotherapy

Observations	6 mo.	9 mo.	1 yr.	2 yr.	3 yr.	5 yr.
Number of cases	57	24	19	17	9	2
Sex: Female	4	2		1		
Male	53	22	19	16	9	2
Bilateral renal tuberculosis, pulmonary tuberculosis	1	5	4	..	..	1
Improved	1	3	2	..	..	..
Stationary	..	1	1	..	..	..
Worse	..	..	1	..	..	1
Death	..	1 (pulmonary hemorrhage)				
Bilateral renal tuberculosis, pulmonary vesical, genital tuberculosis	8	14	9	5	1	..
Improved	4	8	4	2	..	..
Stationary	1	4	3	3	..	..
Worse	..	1	2	..	1	..
Death	3	1 (all four were terminal cases and death resulted from uremia)				
Vesical tuberculosis; one kidney removed	1	2	8	4	1	..
Improved	1	1	5	..	..	..
Stationary	..	..	..	..	..	..
Clinical cure	..	1	3	4	1	..
Genital tuberculosis, pulmonary tuberculosis	7	14	28	12	2	1
Improved	5	6	14	7	..	1
Stationary	1	2	2	..	..	..
Clinical cure	1	6	12	5	2	..

Since it is evident that the technic of the administration of heliotherapy must vary greatly according to the location, the condition to be treated, and the patient, no attempt will be made to lay down a definite plan to be followed.

To insist on individualization of patients and careful supervision of the treatment, keeping constantly in mind the characteristics of heliotherapy will, I have reason to believe, bear bountiful fruit by way of increase in life expectancy, in comfort, and in the number of clinical cures.

The series of cases here reported is taken from my consulting service at the Government Hospital Num-

ber 51, Tucson, as well as from my own private practice, and includes only those cases in which heliotherapy could be administered and in which the present condition is known. The accompanying table is self explanatory, except as to the data which determined the classification. To be called improved, the patients must have shown definite improvement in their general condition as well as in the local and urinary symptoms present; and if there was kidney involvement, the renal function test, checked by blood pressure and blood urea determinations, must have remained stationary or have shown an increase. In cases in which there was also vesical or genital involvement or both, there must have been, in addition, improvement by way of healing of ulcers; lessening of inflammation; diminished bladder irritability, dysuria, frequency and pus; relief of pain and local discomfort; decrease in the size or softening of the part involved, and definite lessening of local inflammation. Any patient with kidney involvement showing an appreciable decrease in renal function was classified as worse, regardless of all other observations.

REPORT OF CASE

A brief study of one of the cases tabulated should serve to show the manner in which classification in this series was carried out:

L. K., first seen, Sept. 15, 1925, complained of being compelled to void every fifteen minutes, and of marked dysuria. The bladder capacity was 2 ounces and there was marked irritability. The urine was very cloudy, and on standing was one-fourth pus by volume; a small number of red blood cells was present, and from one to five groups of tubercle bacilli were found in each field.

One cubic centimeter of phenolsulphonphthalein given intravenously yielded 15 per cent the first fifteen minutes; 15 per cent the second; 10 per cent the third, and 8 per cent the fourth fifteen minutes.

The blood urea was 22.08 per hundred cubic centimeters. The blood pressure was 146 systolic, and 98 diastolic. The general condition was very poor; the patient appeared toxic; the skin was dry and sallow, and the appetite was poor. The patient was listless, nervous, irritable and weak.

There was partial obliteration of the calices with filling defects on both sides but most marked on the left. Tubercle bacilli were found in the urine from each kidney. Mixed infection was present in each kidney. There was acute inflammation of the bladder fundus, with multiple ulcerations, and marked irregularity. Moderate trabeculation was noted. The trigon was acutely inflamed, with multiple ulcerations. A slightly edematous right ureteral orifice was seen with numerous ulcerations around it, and a decidedly edematous left ureteral orifice showing retraction and surrounded by numerous ulcers. There was a coarsely granular, acutely inflamed prostatic urethra with numerous granules around the vesical opening. A fistulous tract, just posterior to the verumontanum running into the prostate, emitted pus on irrigation. The prostate was moderately enlarged, very tender, irregular, nodular, and quite hard. The seminal vesicles were soft and full; however, they emptied easily and, together with the external genitalia, seemed quite normal.

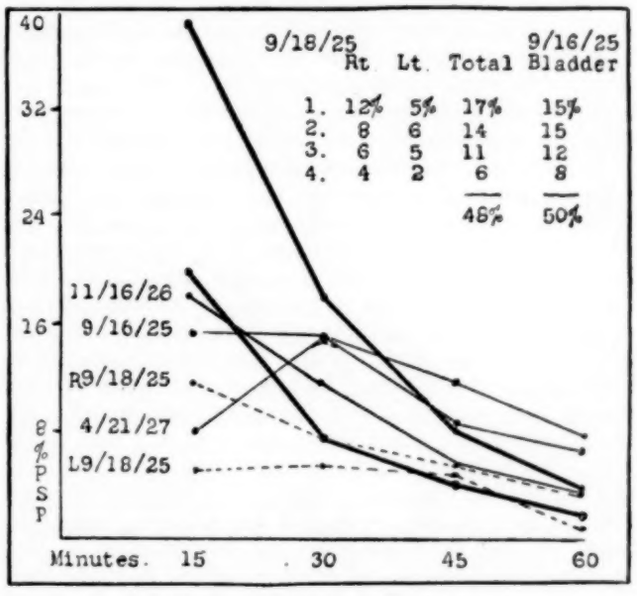
During the first three months of treatment a decided improvement took place in the urinary condition and in the symptom complex. Nineteen months later this improvement was still continuing, as shown in the accompanying chart. The patient had gained 10 pounds (4.5 Kg.); the blood urea estimation was appreciably less; the general physical condition was somewhat improved, and there was definite local evidence of vesical and genital improvement. The blood pressure, however, was increasing slightly, and the renal function test, graphically studied according to the method of Shaw, showed improvement at first but at a later examination a decided decrease in the first fifteen minutes and a much poorer curve generally. Since the total result showed a decrease throughout the period, this case was classified as worse.

I have shown graphically by dotted curves the differential renal function in this case, Sept. 18, 1925, two days after the test made of the bladder urine, which gives some indication of the condition of the kidneys. I have found it best always to check such a test by comparing a total of the respective fifteen minute periods with the corresponding period of a renal function test by bladder collection done a few days previous to it.

April 21, 1927, the patient could hold urine from one to two hours; there was no dysuria; the bladder capacity had increased to 6 ounces and irritability was very slight. A small amount of pus was present and few red blood cells. Only an occasional group of tubercle bacilli was found.

One cubic centimeter of phenolsulphonphthalein intravenously yielded 8 per cent the first fifteen minutes; 15 per cent the second; 9 per cent the third, and 7 per cent the fourth.

The blood urea was 18.04 mg. per hundred cubic centimeters. The blood pressure was 154 systolic and 114 diastolic. The general condition was fairly good; the appetite was good; the skin was velvety, and the patient felt more vigorous.



Excretion of phenolsulphonphthalein.

There was a low grade fundus inflammation, and few trabeculi. There was a moderate amount of inflammation of the trigon, and around each ureteral orifice were a few scars but no definite ulcerations. The posterior urethra was granular. Pus was not emitted from the prostatic fistula. The prostate was of medium softness with a slight irregular or nodular tendency.

COMMENT

I have recently examined a patient in whom an examination and diagnosis of bilateral renal tuberculosis had been made elsewhere. Phenolsulphonphthalein had appeared from the right kidney in seven minutes; none had been eliminated by the left kidney in fifteen minutes, a two hour function test showed 30 per cent from the right; 5 per cent from the left, and 5 per cent voided urine. A most unfavorable prognosis had been given. Checked as in the case reported above, this patient showed a combined phenolsulphonphthalein output of 40 per cent in the first fifteen minutes; 10 per cent in the second; 6 per cent in the third, and 3 per cent in the fourth, or a total of 59 per cent, and a quite normal graphic curve. As a result of a study not only of the first case discussed but of many such, I feel that the fifteen minute interval of collection as applied to renal function tests is of definite value and much to be preferred to one-half and one-hour intervals in noting progress, as well as in giving prognosis, in such cases.

SUMMARY

Of the 128 patients here reported, sixty-four show improvement; in eighteen the condition is stationary; six are worse; five are dead, and thirty-five show clinical cure. The clinical cures are all in the vesical and genital classification, wherein the best results are obtained from this form of treatment. Out of sixty-four genital and sixteen vesical cases, thirty-five are clinical cures, or perhaps it would be best to call them arrested cases, since they may under adverse circumstances again become active as do pulmonary cases. Of the thirty-seven cases reported in the second classification, twenty-two showed vesical involvement of some degree, and with the exception of two cases, all showed improvement of the vesical symptoms. Two of the patients with terminal tuberculosis showed improvement of frequency and dysuria to such an extent that they were able to double their periods of sleep.

Improvement under sunlight therapy is slow at first, and the patients are inclined to become discouraged and wish to hasten their improvement by a rapid increase of their interval of exposure. This they may do, regardless of how careful we are to impress on them the importance of following instructions.

If furnished a chart on which they must tabulate daily the interval of exposure and note any bad effects, they can be kept more easily within safe bounds, and will manifest more interest in carrying out instructions. I recently was called to see a patient whom I had seen six months before and diagnosed as having bilateral renal tuberculosis. He left the state immediately after the examination, and had the diagnosis substantiated elsewhere. Heliotherapy had been suggested to him, and he had been told what to expect and avoid. He had returned to Tucson some time before I was called to see him because of a most severe hematuria, the first and last that he has had. Inquiry into the case revealed that he had rapidly increased his sunlight treatment from one-half hour anterior and posterior up to two hours anterior and posterior daily within less than two weeks, and for several days before the hemorrhage had had sufficient symptoms of overdosage to warn him of danger. I have repeatedly seen patients increase the urinary frequency and produce dysuria by disobeying instructions and rapidly increasing their dosage.

CONCLUSIONS

Heliotherapy is of definite value in the treatment of genito-urinary tuberculosis, but it may do harm if it is not properly administered. A knowledge of the amount of ultraviolet rays present in the sunlight of the locality in which treatment is being carried out should be of value. Individualization and careful supervision should be insisted on.

26 South Stone Avenue.

ABSTRACT OF DISCUSSION

DR. GILBERT J. THOMAS, Minneapolis: At Oak Terrace, Minn., we have a sanatorium with 700 beds occupied by patients with tuberculosis of various parts of the body. This sanatorium is completely equipped for the treatment of all types and lesions of tuberculosis, and its staff includes competent men in all departments of medicine and surgery. Last year, in a report, I stated that renal tuberculosis may become quiescent. I think that we should not use the word "arrested" in speaking of renal tuberculosis, as we do of pulmonary tuberculosis, but should say "quiescent," as many cases of renal tuberculosis remain quiescent for long periods and then become active. Heliotherapy is given a large place in the treatment of renal tuberculosis. Dr. Shultz's paper illustrates what may be accomplished with heliotherapy in the treatment of urinary tuberculosis. We should know more of the possibilities of medical treatment for tuberculosis of the urinary tract. We do not disagree at all as to what should be done when phthisis of one kidney is encountered, but when no demonstrable lesion is found on the other side, we should do the best we can with surgery. After the kidney has been removed we have only begun to cure the patient, so far as the tuberculosis is concerned. At this time we should insist that the patient have the benefit of just such treatment as Dr. Shultz has demonstrated today. The lesion in the kidney means that it is secondary to some other lesion which is active elsewhere in the body, and the patient should have the advantage of complete sanatorium treatment following all surgical procedures.

MENTAL SYMPTOMS IN RELATION TO GENERAL MEDICINE *

C. C. WHOLEY, M.D.
PITTSBURGH

Every physician faces the problem of dealing with mental symptoms in his patients. Mental symptoms are of very frequent occurrence. They may arise in the course of any disease process. Not infrequently cases appear in which a morbid mental state constitutes the essential etiologic soil out of which the somatic, or bodily, symptoms arise. On the other hand, organic disease is constantly giving rise to emotional or mental reactions. On whichever basis they may arise, much of the mental symptomatology commonly encountered can be interpreted by the general medical practitioner.

The general physician often hesitates to deal with mental conditions, although he attacks with confidence problems of equally obscure organic, serologic or bacterial origin. For example, the clinician makes use of the technical researches of the specialist in cardiorenal disorders, or of the biochemist in diabetes, or of the endocrinologist in the use of complicated ductless gland therapy. One reason why the general physician has, in the past, been less willing to trust his own judgment in diagnosing mental phenomena is that only within recent years has the close relationship between mental and bodily symptoms been generally appreciated. Again, the exaggerated claims of the overenthusiastic, in stressing the psychic element in disease pictures, have caused certain physicians to close their eyes almost entirely to the important part played by the emotions in illness, and have influenced them to recognize only those factors having a demonstrable physical basis. Of course, we know that the interplay in the organism between mental and bodily factors is not always easy to recognize, and to recognize the more intricate relationships requires special study and, I believe, a certain special aptitude. Many physicians are not qualified either by temperament or by training to interest themselves particularly in mental mechanisms. However, in the light of present-day research in physiology and psychopathology, the general physician is able to bring to bear a working knowledge of mental pathology which should enable him to attack confidently much of the mental disorder in his practice.

The general practitioner usually is the first to come in contact with the patient. It is extremely important that he be equipped to recognize symptoms of a mental

* Read before the Section on Nervous and Mental Diseases at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

character. Otherwise valuable time is often lost, while grave neural or mental disease is overlooked, or mistaken for a passing functional or simple organic disability. My purpose in this paper is to direct attention to the significance of certain mental symptoms which commonly appear in general practice.

I shall consider here only a few of the disease entities, and that merely suggestively, in which mental symptomatology may complicate the medical problem. Among these are infection-exhaustion states, early general paralysis, dementia praecox, and the anxiety neuroses.

INFECTION-EXHAUSTION STATES

The first condition is referred to in psychiatry as an infection-exhaustion psychosis. In simple terms, such psychoses usually mean the delirium resulting from such infections and toxic conditions as pneumonia, typhoid, intestinal toxemias, uremia, thyrotoxicosis, puerperal exhaustion, and alcohol and drug addiction. When patients in these conditions become confused and begin having hallucinations, it is evidence that the brain and nervous system are being overwhelmed by exhaustion and the toxic products of the morbid process. One can hardly overstate the serious import of these confused, or delirious, states. The onset of confusion or delirium in all conditions of exhaustion or toxicity should be carefully watched for. Their appearance is always a danger signal and calls for immediate and drastic therapeutic procedure. Under such circumstances, disease poisons are clogging the lymph spaces of the brain, thereby inducing delirium and collapse. It is essential that these poisons be quickly eliminated. The immediate need is for drastic catharsis and thorough flushing of the system with fluids. It is through these measures that brain and nerve tissue can be restored to adequate function and can continue to carry on the vital processes of circulation, respiration and general metabolism.

In such cases of toxic exhaustion, the delay of a few hours in the introduction of eliminative and supportive measures may mean the difference between recovery and fatality. A recent patient, a woman, had passed through three months of recurring deep-seated pelvic and thoracic abscesses. Her condition had necessitated repeated operations. She finally passed into a delirium and a stuporous state. Death seemed imminent. She presented the typical clinical picture which results from infection and exhaustion. Active elimination by hourly doses of magnesium sulphate with forced fluid intake was instituted. This treatment, I am convinced, was what saved her life. It transformed the moribund picture, within twenty-four hours, to one of good prognosis. The active delirium subsided; she slept naturally and took food, which had been violently resisted, and became normally convalescent.

Cases of infection and exhaustion are common experiences in medical practice. The onset of the serious incident of confusion may, in its early stages, go unnoticed unless especially looked for. It manifests itself obviously in varying degrees of insomnia and restlessness; in fleeting and terrifying sensory hallucinations, such as those of sight or smell or hearing, particularly at night, and also, often, in unreasonable fault finding or irritability. A simple expedient for ascertaining the early onset of confusion is to learn from the patient whether or not he is clear about his surroundings; that is, whether he knows where he is, and who the people about him are. A few tactfully put questions as to time, place and persons will readily elicit this information. If it is found that the patient is confused in any of these matters, it is to be remembered that such disorientation is significant of serious toxicity and exhaustion, and the time is at hand to institute measures to prevent further delirium and collapse.

The question of hypnotics or sedatives so often resorted to for the insomnia and restlessness in these cases demands most careful consideration. The brain in its toxic and exhausted state is already unable to respond to sedatives physiologically. Hence, such drugs may only aggravate the case by inducing further toxicity. Hypnotic and other drugs, if indicated, will produce the desired physiologic effect only when the brain and general system have been relieved of the paralyzing consequences of toxicity and exhaustion. The usual picture of confusion and delirium significant of the toxic and exhaustion states may be altered in patients with constitutional psychopathic trends, such as dementia praecox, epilepsy, or manic-depressive insanity. And the more typical mental picture may be colored by incidents peculiar to such special underlying predispositions.

GENERAL PARALYSIS

General paralysis, the second topic to be considered, is a serious mental disease of organic origin. It usually falls early into the hands of the general practitioner. It must be borne in mind that every individual who has carried syphilis in his system is a possible candidate for general paralysis. One of the difficulties about diagnosis in the early stages of general paralysis is that it may, as we all know, simulate symptoms of hysteria and neurasthenia. Because of this simulation, it sometimes escapes recognition. However, the fact that moral and mental deterioration take place in the paralytic person from the beginning supplies a valuable point of differentiation in diagnosis. Real mental deterioration is, as is known, absent in neurasthenia or hysteria. The insidious onset of mental and moral reduction may make of the paretic a menace to his family and community. Often, before the real nature of the disease is discovered, its victims wreck their families by wild business schemes, or humiliate them by disgraceful escapades. In positions of responsibility like that of the railroad engineer, for example, in which poor judgment or slight mental confusion may mean disaster, it is needless to say that the general paralytic may be a danger to the public.

An outstanding differential feature in the patient with general paralysis is his change of character. On careful analysis, he is found to present an entirely different front from his previous normal self. He neglects his business, though mechanically occupied with its routine, often indulging in unpractical schemes. Occasionally he becomes merely inert, sitting listlessly at his desk, though claiming to be in good physical health. Inquiry will often show that he has grown careless in dress as well as in morals. Men previously sober may begin a career of inebriety during early general paralysis. In a word, such a person presents a general reversal of his previous character. Frequently, in such cases, the man's breakdown is attributed to alcohol rather than to the real cause, the underlying general paralysis. These patients, although consulting the physician for various complaints, are likely to make light of their symptoms. This cheerfulness is in marked contrast to the attitude of the hysterical or neurasthenic person, who is likely

to exaggerate his ills. While this optimistic attitude is the usual picture in general paralysis, a patient is occasionally encountered who is depressed from the outset. In this case, differentiation from neurasthenia is more difficult.

Finally, we are safe in making a diagnosis of general paralysis only when there are physical anomalies, such as the Arygle Robertson pupil; the absence, great exaggeration or lack of symmetry in the knee or elbow jerks, and various muscular tremors, shown in the voice, in the muscles of the face and sometimes in the gait. It is within the scope of the general practitioner or the surgeon to detect these pupillary and other reflex anomalies of the nervous system. The simple procedure of examination of the knee and elbow jerks, the pupillary reactions, and the Babinski reflex should be made a routine practice when patients present nervous symptoms. At times, serious organic disease is thus discovered underlying the neurasthenic or hysterical picture. General paralysis may in this way be first brought to light, and the real basis discovered for the hypochondriac and organic disturbances common in early stages of this disease. When general paralysis is suspected, laboratory examination of the blood and spinal fluid is, of course, a logical procedure for further confirmation.

It is important to remember that patients with cerebrospinal syphilis, including early general paralysis, do not always give a positive blood Wassermann reaction. In suspected cases, the spinal fluid should also be examined. Cases of syphilis of the nervous system are still being overlooked because of a negative blood Wassermann reaction.

My purpose in this very brief discussion of general paralysis has not been to go into any detailed account of the symptomatology. It has been merely to indicate some of the early mental symptoms which may aid in the detection of the disease before it reaches the psychiatrist, and while it is presenting symptoms which may be confused by the clinician with general medical problems, particularly neurasthenia and hysteria, when there is still a chance for effective therapy.

DEMENTIA PRAECOX

Dementia praecox is another prevalent mental disease which confronts every physician. Dementia praecox cases constitute from 30 to 40 per cent of admissions to our psychopathic wards. As the name implies, it is a mental malady which, in general, attacks the adolescent. It arises in opposite extremes of personality make-up. On the one hand, it develops in the timid, seclusive, inarticulate, overscrupulous type, who are rigid and uncompromising in their interpretation of morality, and often break mentally in their futile efforts to attain their ideals. At the other extreme, we find the overbold, callous, cruel type, incapable of developing moral or social sense. The first type becomes dreamy, depressed and suspicious in adolescence; the other is likely to reach the juvenile court on account of his delinquencies. Puberty is apt to mark the period of mental collapse.

The symptoms of dementia praecox are myriad. It may manifest itself in almost any imaginary organic or bodily ill, such as simulated heart disease, bladder disturbance, displacement of bones, or digestive disorders. On the mental side, it may range from the peculiar activities of the overexcited hypersensitive individual of eccentric ideas, to the dull shut-in, asocial type who manifests little or no interest in his environment. As in general paralysis, individuals with dementia praecox frequently present themselves with symptoms resembling neurasthenia and hysteria, as well as with symptoms resembling organic disease. There is probably no other form of mental anomaly which more frequently demands of the internist and surgeon a working familiarity with its vagaries of expression.

I recall the case of a young man of 20 whose prostate had been enucleated as a result of a persistent set of complaints centering about the genito-urinary organs. His symptoms, it transpired, were hypochondriac, on a delusional praecox basis, without organic etiology. They, of course, continued after the operation, which had left him with the additional handicap of urinary incontinence. Another patient presented to the otologist symptoms simulating mastoid involvement. However, operation had not revealed any pathologic condition, and the symptoms remained unchanged. The history showed that again we were dealing with one of the bizarre types of dementia praecox. A girl, aged 16, suffered from persistent vomiting. Investigation showed her to have dementia praecox. Her vomiting was a result of the delusional idea that she was pregnant. Her imagined pregnancy was the result of the excitement over a scandal about a school friend, who had given birth to an illegitimate child. These are somewhat extreme examples. But in hypochondriac cases, in the absence of clearly defined surgical or medical indications, dementia praecox is a fairly common explanation for the symptoms, particularly in young persons. Persistent questioning and inquiry into the history of the individual will bring out the delusional basis of his complaints.

Sometimes in these cases of dementia praecox one finds an organic disturbance which is being caused by some delusion. This delusion can be unearthed only by persistent and sympathetic questioning. Recently, a young man complained of pain in his stomach. He was found to be eating ravenously. It finally came out that he was gorging to satisfy the appetites of the "horde of spirits" which he believed inhabited his stomach.

There are certain peculiar features about patients with dementia praecox which serve to differentiate their condition. They are usually young. They frequently have become, on the one hand, depressed or, on the other, excited, without evidence of infection or other physical cause. Their explanations for their symptoms are illogical, childish and notably farfetched and queer. One speaks of bubbles of gas felt in the head, which set up distress in the pelvis. Another reluctantly explained a delusional pain in the appendix region by saying that his organs were decaying as a result of masturbation. Still another patient believed himself the storm center of electrical currents. He was manacled in bed and was greatly agitated. It was found that his extreme agitation was due to the fact that he could not bring his hands together in order to "close the circuit," as he said. When the manacles were adjusted so that he could bring his hands in contact, his management became a simple matter. This case illustrates the need for listening sympathetically to these persons, even though their ideas seem hopelessly insane. The explanations for their symptoms, as has been said, are often elicited only after considerable inquiry.

Generally speaking, it is the erratic, odd, unusual symptoms in the person with dementia praecox that at once arrest attention. The symptoms do not group

themselves in conformity to other familiar disease pictures. Such a person is full of contradictions. He may complain of excruciating pain or believe himself the victim of fatal heart disease, and show no feeling or concern about the matter. He often discusses it, however serious he may declare his condition to be, without any indication of emotion. On the other hand, he may show most violent distress over very trivial things, such as an imagined neglect of duty or some slight indiscretion. In short, the feeling reactions of the person with dementia praecox are conspiciously out of harmony with the matters of which he complains. He laughs when, in view of his statements, he ought to cry, or vice versa. I have now a patient who recounts, at my daily visits, the most horrible tortures, which he says he goes through every night. He insists, among other things, that a group of women tear out his teeth and his testes. He tells this every day with a smile, and goes quietly about as if entirely comfortable.

One cannot tell what these individuals may do. In their emotions, or in their attitudes, they present a marked deviation from the normal. They are the persons who calmly and unexpectedly commit atrocious crimes of grotesque and often revolting character. The apparent attitude they present is no guide as to how they may act. A young man, although apparently in excellent physical health, calmly drank compound solution of cresol. With the utmost indifference, he stated that he did it because he feared he might die from a goiter, the possible presence of which had been suggested during a medical examination. Another patient, a quiet, harmless looking carpenter, working at his trade, came in complaining of stomach trouble. He quietly, and in great confidence, told me that he was contemplating killing his wife and three children. Inquiry showed that he was dominated by praecox delusions. He now imagined that his oldest son was illegitimate. It was found that he had suffered almost equally with his wife during the delivery of this child. Now in his paranoid, delusional state, his nausea was apparently due to some associative identification with this event.

The acute onset of dementia praecox often begins with such physical disturbances as anorexia, dizziness, a rapid heart or fainting attacks. This symptomatology may give the appearance of the onset of an infectious disease, except that a consistent rise in temperature and other clinical or laboratory evidence is not found. But the peculiar behavior, the striking emotional apathy, or, on the other hand, the silly unwarranted display of emotion over trifling causes will suggest the probability of dementia praecox. Furthermore, the early history will often reveal the fact that the patient has been of a shut-in temperament, overscrupulous, prudish and introspective.

Again, as in the infection deliriums and in general paralysis, so in dementia praecox, I am suggesting only some of the outstanding features which characterize the disease, and which may be readily discernible by the practitioner. To sum up, these symptoms are conspicuously silly, illogical and changeable. The patient's feelings are superficial, and out of keeping with his complaints.

ANXIETY NEUROSES

A fourth group of cases, known to the psychiatrist as the anxiety neuroses, also complicate the work of the internist and surgeon. In general terms, they are often designated as major or minor hysteria. Having in mind the general medical reader, and wishing, therefore, to avoid psychiatric technicalities, we may say that these cases represent, in reality, aggravated hysterical or emotional reactions to unbearable situations, such as those of fright, anxiety, bereavement or injustice. In simple terms, an anxiety neurosis occurs when an individual comes up against a situation with which he cannot cope. And his emotional stress or conflict manifests itself in some mental or organic dysfunction. The symptoms serve to cover up the true and unendurable difficulty, and rivet his attention on other bodily or mental disturbances, either imagined or greatly exaggerated.

A variety of disease pictures may be simulated. The patient with an anxiety neurosis usually complains of digestive, cardiac or genito-urinary dysfunction, with little or no organic explanation discoverable. But the illogical, contradictory picture presented by the patient with dementia praecox is not apparent in the anxiety neurosis. In the latter, the distress seems to fit in with more familiar underlying pathologic changes. And functional disturbance is evident, though no organic change is to be found. In the anxiety neurosis, as in dementia praecox, the mental disorder underlying the symptoms comes out in the history. But instead of a basis of bizarre, illogical imaginings and delusion, as in dementia praecox, the anxiety neurosis has a more sequential relationship to the emotional trauma back of the bodily symptoms. At times there has been a prolonged period of anxiety, insomnia, trembling, sweating and vague distress due to some intolerable situation, which gives rise to, or in other words becomes converted into, hysterical bodily symptoms.

A middle-aged woman was admitted to the hospital complaining of indigestion, loss of weight, insomnia and cardiac distress. No organic explanation was discoverable. We learned that just previous to the beginning of her symptoms, a year earlier, her husband had recklessly dissipated their fortune. Her children had had to be withdrawn from college. The ambitions and work of a lifetime were gone. Humiliating changes in standards of living and in social contacts were thrust on her. The brooding and disappointment over this reversal of fortune brought about sleepless nights, fatigue and exhaustion, loss of appetite, tachycardia and depression. This emotional upheaval registered itself in the bodily symptoms of indigestion, tachycardia and insomnia, which presently began to occupy her attention, reducing her to the state of hypochondriac invalidism which brought her to the hospital. She was entirely preoccupied with her bodily symptoms and made no reference to the emotional stress through which she had lived. It was only after careful questioning that her troubles were discovered. In simple words, her anxiety over a social dilemma which she could not remedy had transferred itself to bodily symptoms for which she could seek relief. Of course, the hidden source of her neurosis had still to be dealt with, but she was an intelligent person, and when the origin of her symptoms was explained to her and she was convinced of her essential organic soundness and of her ability to meet her responsibilities, she began to sleep and to regain her morale, and her functional symptoms disappeared.

Cases such as these lie well within the realm of the general physician as to successful diagnosis and treatment. Gratifying results are to be obtained only through recognition of the mental factors underlying the symptomatology. Emotional distress is displayed in these patients when the source of their real anxiety is laid bare. In taking the history, the physician can tell by the emotional display (tears or indignation, often) when the sore spot in the mental life has been touched. It is usually not difficult to connect the origin of the symp-

toms with the emotional or distressing crisis in the patient's past. A valuable start in freeing the patient from his symptoms is made when he is allowed to tell his story, with the consequent release of his pent-up feelings. The therapeutic value of a sympathetic attitude toward the patient's story can hardly be overemphasized in the anxiety neuroses. Successful therapy can proceed only by dealing with the question of mental and emotional readjustment. In connection with the anxiety neuroses, it is interesting to note certain experiments which demonstrate the relationship between the emotions and physiologic processes. Cannon [1] cites the following case as illustrative of the effect of a strong emotion on the digestive processes:

A refined and sensitive woman, who had had digestive difficulties, came with her husband to Boston to be examined. They went to a hotel for the night. The next morning the woman appeared at the consultant's office an hour after having eaten a test meal. An examination of the gastric contents revealed no free acid, no digestion of the test breakfast, and the presence of a considerable amount of the supper of the previous evening. The explanation of this stagnation of the food in the stomach came from the family physician, who reported that the husband had made the visit to the city an occasion for becoming uncontrollably drunk, and that he had by his escapades given his wife a night of turbulent anxiety. The second morning, after the woman had had a good rest, the gastric contents were again examined; the proper acidity was found, and the test breakfast had been normally digested and discharged.

It is, of course, true that emotional factors are frequently bound up with real bodily disease. An evaluation of the part that the emotions or feelings play will always prove helpful, and will in no way negative or belittle the value of other clinical procedures. It is, in short, merely a matter of looking at the emotional or mental factor as one element in the clinical picture. The human organism being a unit, all of its functions, mental and emotional, as well as such physiologic processes as the digestive, circulatory or biochemical, must be reckoned with in disease problems.

This interrelationship of mental and physical factors was emphasized in one of my own cases:

A woman who contracted gonorrhea from her husband at the time of marriage developed pelvic adhesions as a result of the inflammatory process thus set up. Marital relations came to be dreaded because of the pain incident thereto. Soon the pain became constant, and served as a means of reducing this relationship to a minimum. A laparotomy was performed; the adhesions were broken up, and apparently all organic reason for the woman's pain and abdominal discomfort was removed; but the continuous discomfort persisted. Her husband was called to the service for a period of two years. While he was away, the woman became entirely free from all bodily distress. When she learned that he was returning, the cramps and pain suddenly reappeared, and persisted until proper psychoanalytic therapy was applied.

This is an example of what occurs in less marked degree in many apparently surgical and medical ailments. Many such cases can be successfully diagnosed and handled by the physician who takes into consideration both mental and bodily factors.

HYSTERIA

This paper does not presume to take up a detailed account of hysteria, but, throughout, the importance of a recognition of hysteria has been evident. I have shown how general paralysis and dementia praecox may be mistaken for simple hysterical and neurasthenic conditions, and that the anxiety neurosis is the soil out of which hysterical symptoms may develop. Often, hysteria is merely a superimposed symptom, and indicates a constitutional quirk in the make-up of the individual, regardless of whatever other disease process may be at work. Its manifestations may be forced into the foreground by some physical or psychic stress, and it is well to recognize the hysterical element, along with any other factors which may exist. The following case is illustrative of an anxiety neurosis, precipitated by grief and economic fears and finding morbid adjustment in hysterical manifestations:

A robust young man recently came to the hospital complaining of distress in the epigastrium. He had greatly reduced his diet because of his conviction that his digestion was deranged. He was depressed, and had stopped work for several months on account of his invalidism. There was a hyperacidity, but no medical explanation for his condition could be discovered. History revealed that this boy's mother had died of cancer of the stomach six months earlier. He had grieved excessively over her death, and had attended her during her illness, which was accompanied by much gastric suffering. His father was an invalid and the family economic situation was acute. This is an example of the transference of an overwhelming emotional experience into bodily symptoms. These were modeled after the symptoms displayed by his mother, with whom he had sympathized deeply. He was intelligent enough to grasp the explanation for the way things had transpired and left the hospital in a few days without distress, with a normal appetite, and excellent morale.

This case portrays rather vividly the suggestibility which is such an essential element in the hysterical make-up. The physician utilizes this characteristic in his suggestive and explanatory therapy. Often the internist is put to long and painstaking research to arrive at the conclusion that a patient's complaints are "purely imaginary," when investigation along psychic lines would early have supplied information as to their emotional origin. The fact, of course, that the neuropsychiatrist can detect the psychic source of somatic symptoms that would hardly occur to the uninitiated must not for a moment be lost sight of. Yet the physician who interests himself in the hardships or emotional stresses which figure in his patients' illnesses can often effect satisfactory adjustment of the neurosis. The psychiatrist is constantly aided in his mental problems by discovering physical etiology; the internist and surgeon can profit as well by searching for mental etiologic factors in the disease problems that confront them

1224 Westinghouse Building.

1. Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, New York, D. Appleton & Co., 1920.

Influence of Uncontrolled Emotion.—To child and adult alike the most disintegrating force is uncontrolled emotion. To correct this danger some of the best balancing factors that the school can foster are engrossing work, normal recreation, and the cultivation of a sense of humor, which in the last analysis means a sense of values. The individual of well integrated personality is master of himself. He is free from suspicions, self-consciousness, and injurious repressions. Moreover, he is optimistic and capable of lending himself whole-heartedly to the work in hand. He is able to face reality and meet conditions as they arise. Without these essentials, intellectual achievement hangs in the balance. The high-school student of normal intelligence who is mentally healthy is apt to be mentally efficient.—Bird, Grace E.: *Mental Hygiene* **11**:260 (April) 1927.

THE PSYCHONEUROSES

THEIR PROBLEMS IN THE GENERAL HOSPITAL *

GROVES B. SMITH, M.D.

DETROIT

My object in this contribution is to call attention to an almost unexplored field of mental hygiene; namely, the borderline psychoneurotic mechanisms as seen in the general hospital. The psychobiologic point of view of Meyer [1] has steadily gained ground, and as a consequence, psychiatry in general hospitals is more and more assuming a position of importance. The need for earlier recognition and earlier treatment of psychoneurotic mechanisms is being recognized both by the lay mind and by the internist and the surgeon, not only as a general diagnostic need but also as a means by which prolonged hospital residence may be reduced to the minimum.

The complex civilization of today demands a greater degree of adjustment to the problems of everyday life than ever before, regardless of whether those problems are industrial, marital or religious. Daily, the casualties of "merely living" in this constantly changing world where complex and conflict abound increase almost without measure. Such casualties appear at the doors of the general hospitals, often so cloaked in the guise of apparent organic alteration that the underlying personality and emotional reactions pass unrecognized.

The general trend in medicine has been to stress the anatomic and the pathologic; accordingly, when organic disease does exist, disturbances in function secondary to emotional factors are neglected. When organic disease is not found, the patient ceases to be interesting as a diagnostic problem and is hopeless as a therapeutic problem, but he still remains a distinct social problem and as such is misunderstood and shunned by those lacking in neuropsychiatric insight. Unfortunately, psychiatry in the past has been poorly understood, because it dealt with a heretofore hopeless class, spoke in a language all its own, and failed to develop mutual medical interrelationships. Much of this was due to the belief that the mind and the body were separate entities. Psychiatry in the general hospital must speak in terms that the internist and the surgeon can see and understand. Progress is made only when the practical application of well established principles of mental hygiene is daily pointed out and results are obtained, especially in those cases in which the ordinary medical and surgical treatments have failed.

Gone are the days of the family physician—the days when one's physician had the opportunity to study the reactions of the individual from the cradle to the grave. His understanding of the art of medicine gave him insight into the anxieties, the fears, the trials and the tribulations of his patient, his adjustments to home, marriage and community, and created in that patient a sense of confidence that far outweighed his scientific attainments. His willingness to devote his time, his patience and his knowledge to listening to countless woes was often as potent a catharsis as that of the analytic school of today. In fact, much of the practical psychoanalysis of today is an attempt to obtain from the average patient information which the family physician knew through common and frequent family and community contact alone. The insight thus obtained enabled him to solve successfully many a bad family situation without appearing to pry into the family closets and to disturb there the family skeletons. For like reason, he escaped much of the odium that is attached to the efforts of the neuropsychiatrist of today. It must be evident, then, that the successful care and treatment of the psychoneuroses requires a humane understanding of countless social problems. That personal relationship of patient and physician which previously existed is today of no less importance. Care must be taken, however, that we have a sufficient understanding of the personalities of our patients, so that we may dispense sympathy when needed, without at the same time overlooking the importance of appropriate discipline as a means of bringing about a frank realization of the necessity of meeting and of adjusting the problems at hand. When the physician belittles the patient's symptoms in the absence of demonstrable disease, the patient turns for sympathy to the cults, occult or otherwise, where for a price he may obtain anything that he desires, whether it be the bony readjustments of the chiropractor or the tuning of himself in absent treatments to the sympathetic vibrations of the all powerful minds of the Christian science practitioners.

I wish also to emphasize the time element. The time spent with patients is an important factor in diagnosis and in treatment. Failure to give sufficient time to understand adequately and in a sympathetic manner the emotional conflicts, whether they are secondary to underlying personality difficulties or are representative of a misfit in the occupational world, is chiefly to blame for our overlooking the daily problems of life.

Sufficient attention has not been given to the fact that the initial contact with the patient in a general hospital may, of itself, be sufficient to precipitate psychoneurotic mechanisms. To the uninitiated and the timid, fear of entering the hospital so distorts the outstanding behavior reactions that such patients are often labeled as "psychos" or "nuts" by the junior intern, who has neither the training nor the inclination to probe carefully and in a tactful manner into life secrets. Again, in other instances, the anxieties incident to leaving young children at home with strangers, or the financial worry of a large hospital bill being added to an already depleted bank account, may precipitate an acute anxiety state which will readily clear up as soon as extra-institutional agencies can be brought into play. Often the countless telephone calls and repeated visits are merely the reaction of the patient to the fact that the initial contact was limited to one-half hour or less, when one extended interview of two or more hours would have allowed him so to unburden himself that this continued piecemeal procedure would have been unnecessary. Furthermore, emphasis should be placed not only on the thoroughness of history taking, but also on the completeness of the initial physical examination, for then, no matter what question may be asked, one is in a position to give correct information. This not only impresses the patient, a valuable therapeutic aid in itself, but also enables us to talk with assurance. One can then, from the start, assume a dominating rôle in directing the therapeutic measures that may be indicated.

We often recognize the nature of the patient's problems during our very first contact with him. This is,

* From the Division of Neuropsychiatry, Department of Medicine, Henry Ford Hospital.

* Read before the Section on Nervous and Mental Diseases at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

1. Meyer, Adolph: Objective Psychology or Psychobiology with Subordination of the Mental and Physical, J. A. M. A. **65**: 860-863 (Sept. 4) 1915.

however, an entirely different matter from getting the patient into the frame of mind in which he has sufficient insight fully to recognize his difficulties and his limitations, and gaining his cooperation in working them out. Again, in the initial contact, a personal attachment may be formed with the physician who first examines him, and the initial unburdening may bring about sufficient progress to blind the uninitiated to the existence of deeper underlying conflicts. This results in the patient leaving the institution, temporarily assisted over a critical period but without obtaining the help which might have resulted from a more thorough understanding of the personality inadequacies, anxieties or misconceptions. Unless the story obtained is full of wild sex ideations or fantastic experiences, the inexperienced are prone to overlook the daily evidence of minor maladjustments and to note the leads which, if only followed up, would bring about a correct understanding of the background. Once these have been passed by, the patient feels that these difficulties have been dismissed as playing no part in the causation of his trouble and he fails to bring them up again. Neuropsychiatric literature has, unfortunately, emphasized the fact that psychoneurotic mechanisms are complex. For that reason, often, little attention is paid to minor maladjustments. Furthermore, not all patients have sufficient understanding to warrant a complete exposure of the childhood conflicts, the inadequacies, the maladjustments, and the distorted love life. Again, in the general hospital, surroundings are not always conducive to an investigation of the patient's past in the way that such a study is carried out in psychiatric clinics and in institutions. For these reasons, even though we can see evidences of deep underlying mechanisms, I would caution against the exposing of such observations to the patient unless the time is at hand to readjust fully and completely the conflicts which may be stirred up. Since such a procedure not infrequently requires months, caution is indeed the watchword. If the examiner approaches the patient's problems in a hurried manner, mental blocking may result or a tremendous emotional explosion may be obtained, following which the patient leaves the hospital disgruntled and occasionally threatens to shoot the physician. Such instances are always misinterpreted by the lay public and do not always meet with the approval of the hospital authorities, especially if a lay superintendent is in charge.

Recently, Peabody,[2] in a timely article, called attention to the fact that internal medicine now concerns itself with functional capacity just as much as it does with the older limitation of interest in disturbance of function based on an anatomic abnormality. Schwab [3] and others have stressed the emotional influence and the part it plays in disturbing the functional capacity of organic responses, both with and without anatomic abnormality. Heldt,[4] Russell,[5] Henry [6] and Sands [7] have recently made contributions which emphasize the importance of borderline neuropsychiatry in general hospitals. My own experience at the Henry Ford Hospital has shown that at least one fourth of all patients admitted to the department of medicine have need of neuropsychiatric study. In a recent investigation of 100 consecutive cases of psychoneurosis of the anxiety type, only 4 per cent were found that were entirely free from associated organic pathologic changes.[8] This emphasizes, therefore, that the initial contact with the psychoneurotic individual warrants a limited period of intensive general hospital observation. The neuropsychiatric division of a general hospital should be in the department of general medicine for, as yet, the lay mind has not been educated to the desirability of having the mental mechanisms as thoroughly investigated and overhauled as the physical complaints. In the Henry Ford Hospital, since the division of neuropsychiatry is a subdivision of the department of medicine, it can arrange its initial contact with a patient in such manner that the patient looks on the neuropsychiatric examination as being an integral part of the general medical examination, and he can always return home and report to his friends that he was a patient in the medical service. The initial contact, in by far the majority of cases, brings about such an understanding that the patients will return voluntarily to the neuropsychiatrist, because they usually feel that he is the one physician who had the time and the understanding for their particular problem. Thus, the stigma of presenting psychiatric symptoms is dispensed with, although a psychiatrist will never admit that an investigation of mental problems is such a bugbear as the internist would have us believe. If all internists had the neuropsychiatric insight, as Peabody emphasizes in his article, I feel sure that there would be no need for worry as to the care and the treatment of many of the borderline psychiatric cases. But, alas, my personal experience has been that they do not have such interest and insight. Our observations are that the neuropsychiatrist is the last person to make a psychiatric diagnosis unless the organic aspects have been carefully investigated. Fully one third of the neuropsychiatric patients referred by general practitioners are in need of treatment for organic conditions which have been entirely overlooked. Accordingly, one need have no fear that the attention of the neuropsychiatrist, whose work brings him in daily contact with the internist, will be entirely absorbed by the mental symptoms alone.

We are particularly interested at this time in the minor psychoneurotic mechanisms. Our experience has been that the minor mechanisms of social maladjustment, whether they are due to occupational unrest, to infantile behavior responses secondary to underlying personality difficulties, or to the minor emotional conflicts incident to unsatisfied sex strivings, are for the most part overlooked. Individuals in whom conflict often lies deepest are those who have sufficient insight into the business activities of daily life to be successful in that respect, and being, therefore, able to manage one important factor in their existence, they feel likewise qualified to work out their own personality conflicts and problems. The mechanism through which they accomplish this shows itself often in those altered physiologic activities and mental attitudes which, when expressed in medical terms, represent a psychoneurosis. The misconception of the lay mind and of the ordinary physician that the control of nervous mechanisms is essentially a matter of will power is one of the most potent causes for the increasing nervous tension that sooner or later brings about the psychoneurosis.

2. Peabody, F. N.: The Care of the Patient, J. A. M. A. **88**: 877-882 (March 19) 1927.
3. Schwab, S. I.: The Heart in Emotional Conflicts, Am. Heart J. **2**: 166-172 (Dec.) 1926.
4. Heldt, T. J.: Read before the American Psychiatric Association, Cincinnati, May, 1927.
5. Russell, W. L.: Psychiatry and the General Hospital, Bull. Soc. New York Hosp. **1**: 4-6 (March) 1927.
6. Henry, G. W.: The Neuropsychiatric Outpatient Clinic, Bull. Soc. New York Hosp. **1**: 7-10 (March) 1927.
7. Sands, I. J.: Psychiatric Clinic in General Hospital, J. A. M. A. **85**: 723-729 (Sept. 5) 1926.
8. Smith, G. B.: Demonstrations and Graphic Studies, Ann. Clin. Med. **5**: 698-714 (Jan.) 1927.

Thus, the visit of the patient to the general hospital, instead of overcoming the difficulty, may tend to intensify it, especially if he is led to believe that the trouble lies within himself and that all that is necessary is that he drive himself a little harder in the matter of self-mastery. On the other hand, removal of the patient to a hospital environment, if continued for a sufficiently long time, may bring about a change in the irritating environmental factors, with resulting removal of the emotional factors and consequent return to normal or to that improvement which is so often attributed to the medical formulas and to the rest and the dietary enforcements that may have been utilized.

A few recent examples bring these matters out in forceful manner.

REPORT OF CASES

CASE 1.—In March, 1926, an unmarried woman, aged 28, visited the outpatient department for observation because of loss of 5 pounds (2.3 Kg.), stating at the time, "I merely desire to be checked over." A review of the physical observations failed to demonstrate functional or pathologic alteration of the organic systems. At that time the patient was a principal of a school and was earning an excellent salary. She gave no hint as to any morbid mechanisms and expressed her thankfulness to the internist for this information. In March, 1927, the patient returned to the hospital asking to be referred directly to "the nervous department." She was crying and emotionally unstable, and gave a history of having lost 30 pounds (13.6 Kg.), and of being mentally unable to continue her former school work because of inability to concentrate and of crying openly in the classroom before her students. Neuropsychiatric investigation then revealed numerous fears, misconceptions, and apprehensions that were intimately associated with childhood repressions and with the fact that she had been a foot taller than the other children with whom she had played. She had been a shy, sensitive child, feeling that she was not as comely and not as able to wear pretty clothes as her friends. There was definite evidence of emotional infantalism in all her early adolescent contacts. She attempted to compensate for her increased physical stature by using her physical prowess in scholastic games as a means of retreating from facing intolerable situations. This sufficed through high school, but at college, while it offered in a measure some outlet, it prevented her from making adequate social contacts. She felt keenly the necessity of contact with men, but was so fenced in by a multitude of repressions that she soon turned to teaching as a means of unconscious sublimation for a normal home life. Unfortunately for the patient, she was advanced quite rapidly during her early teaching experience, until she finally held a position for which she did not have a sufficient background of training and of experience. She attempted to conceal this through a routine of ceaseless activity from 7 in the morning until 11 at night. Gradually she developed an increasing hypersensitiveness, following which an inability to control her fundamental emotional reactions so undermined normal body activity that she developed palpitation, abdominal pain, headache, dizziness, smothering and choking attacks, all with a loss in weight.

The lay mind is as yet unwilling to recognize that nervousness is common to all of us, the degree depending on the intensity of the environmental factors. In this case, the patient successfully concealed the underlying conflicts and difficulties at the time of her first contact. Because of her pride she could not think of allowing any one to assist her with her difficulties. She did not realize the futility of attempting to control the emotional responses until, first, she saw gradually increasing evidence of malfunction of organic systems, and, secondly, came face to face with the fact that the more she attempted to hold back the tears, the more powerless she was to control them. She misinterpreted these protective mechanisms as evidences of constitutional defect and became panic stricken, even entertaining suicidal thoughts. Three hours spent in frankly pointing out to the patient her inadequacies brought about improvement. Psychotherapy emphasized the fact that she should interpret her present breakdown, not as a disastrous event, but rather as a fortunate one in that she could now meet life as it is, day by day, on a truly frank plane without repression of the emotional side of her life. Several interviews have brought about a complete readjustment, both physical and mental. The lesson to be gained is that if at the time of the initial contact an attempt had been made to follow up the minor evidences of maladjustment, a whole year of torture and of suffering, as well as reduced industrial inefficiency, could have been prevented. We must not take for granted that just because a patient is able to handle his business affairs adequately he is likewise able to handle his inner personality conflicts.

CASE 2.—A married man, aged 42, was admitted to the hospital in the medical service because of general weakness, insomnia, and smothering and choking sensations. A careful review, including roentgenographic and electrocardiographic studies, failed to reveal any pathologic conditions. Two weeks of rest with hydrotherapy and sedative medication failed to alter the clinical picture. Neuropsychiatric consultation revealed that the patient came from sturdy stock, and that his early developmental history was normal without evidences of inadequacy, either in the social or in the industrial spheres. For the past five years, he had been under a severe strain in that his duties as an auditor of branch banks had steadily increased, the number of banks under his charge increasing from three to twenty-two. He was very happy in his work and in his home. The onset of the symptoms started shortly after he had presented evidence in court as to the falsification of bank accounts by a relative of one of the officers of one of his banks. He felt that he must do his duty in spite of the threat that he would not be promoted and the threat that they would "get him." It was not the fear of physical violence, but rather the thought of the injustice that after fifteen years of efficient, faithful service he should be punished for doing his duty that brought about his nervousness. It required considerable probing to ascertain these facts. The associated emotional tension had gradually increased because he had been unable to review these difficulties with any one, even his wife, and at the time of the interview the patient was so wrought up that the least exertion, either physical or mental, was sufficient to bring about an intensive reaction on the part of his whole cardiovascular mechanism, as evidenced by tachycardia, dyspnea and associated symptoms.

This case illustrates what can be brought about in the prevention of chronic invalid reactions of patients with cardiovascular manifestations. Too often we resort to rest alone as a therapeutic measure. The introspection and the constant review of such injustices as this cited, unless there is an outlet through sympathetic talks, will soon produce an agitated depression, often with suicide as the only means of escape, or the patient may retreat into chronic invalidism reactions in an attempt to obtain sympathy through his fear of sudden death through cardiac failure.

CASE 3.—A man, aged 52, reported to the outpatient department for observation of "high blood pressure." Careful observation failed to reveal the fact that his condition had an organic basis. The systolic pressure dropped from 170 to 130 during the course of the examination. Initial contact failed to disclose any outstanding conflicts. His family life was unusually satisfactory. As an agent for a line of automobiles that had been unusually successful, he prospered financially. Rest and sedative medication brought about distinct improvement, but still the patient did not "feel well."

A lengthy psychiatric investigation disclosed that three years before the patient's pride had been wounded because of losing the agency of another automobile firm which he had served faithfully and conscientiously for fifteen years. This had come about through reorganization of the business, and the patient had been "shelved" through no fault of his own. A frank understanding of the causative factor, a realization of the need for making the best of things, and a readjustment of his interests so that he ceased to live in the past, brought about a satisfactory adaptation.

We, as physicians, are too prone to consider that individuals who are making progress satisfactorily in a financial way and who are showing hyperkinetic mechanisms with either a moderate arterial hypertension or a hypotension, depending on the body type, merely need a rest program. We overlook the fact that the qualities which enable such persons to succeed are the very ones that consistently bring about a nervous tension; namely, alertness, sensitiveness, loyalty and ambition to succeed. The conflicts and the anxieties incident to production methods, and the impersonal attitude of the modern business organization, cause the patient to feel that he personally is to blame, rather than that the organization's methods are the real cause. He lacks the ability to adjust, for he has the qualities for independent action and his whole being speaks out against being merely a cog in the wheel. For those past the age of 50, the fear of competition with youth is becoming a more prominent problem, and when necessity arises for making a change they completely lack the fundamentals necessary for adjustment to other lines of work.

The evaluation of the psychoneurotic manifestations is not easy, for what often may appear to be trivial difficulties to the physician are not so to the patient. The following case illustrates this point:

CASE 4.—Recently, a married woman, aged 46, was seen because of severe headaches, involving the occipital and the temporal areas. She was passing through the menopause, and there was a moderate hypothyroidism, with basal metabolic determination of minus 12. Roentgenograms of the cervical and lumbosacral areas showed a moderate degree of chronic infectious arthritis, and the presence of chronic cholangeitis was corroborated by biliary drainage. When the patient was told the various diagnoses, the only one that caused any alarm was the arthritis, which difficulty, however, was the least marked of them all. In spite of general reassurances on the part of the internists, she still continued to be quite upset and nervous, and was unable to sleep. Sympathetic interest on the part of the husband served to intensify the picture. Neuropsychiatric investigation revealed that the patient's mother-in-law had been an invalid for fifteen years with a chronic arthritis of the deformans type, which involved all the extremities. For the past ten years a gradually increasing parkinsonian syndrome had been superimposed, adding to the hopelessness of the prognosis. Constant daily association had deeply ingrained such fear; hence the mere mention of the word arthritis conjured up a picture of how she might look in a few years.

A frank discussion of the real causative factor in this case and emphasis on the fact that we were paying particular attention to details of diagnosis and treatment which had been neglected in the case of the mother-in-law were sufficient to develop insight in the patient. What, to the physician, may be a trivial matter may in the minds of our patients be so accentuated that they are thrown into an acute panic, for little do we realize the complicated mental association mechanisms which factors of this kind bring to light. On the completion of a period of diagnostic studies, we often accumulate such a mass of information regarding the organic systems of the body that the poor patient often has to go to another physician to have the matter explained to him if care is not taken to point out in a practical manner the relative importance of each disease process. Unless we have an adequate understanding of the patient's point of view toward life, we have no business advising him of our observations. The psychoneurotic person is unusually suggestible and, above all, introspective. Accordingly I emphasize that we should make a practice of advising the patient with psychoneurotic mechanisms only of those factors about his physical and his mental life which he is able to comprehend and to adjust. We must be most explicit, not only in our explanation but also in the manner of giving medication. Often, because conflicts are present, medicinal measures are cast aside. Especially is this true in the more modern psychiatric clinics. In the case of the patients seen in a general hospital, the lay mind has not been sufficiently educated to see that through psychiatric adjustment alone relief may be obtained. The time element in the general hospital requires that a compromise be made, because hours and weeks cannot be spent on the individual neuropsychiatric case, and hence medicine can be used as an accessory means in obtaining the confidence of our patients. I desire to emphasize again that much may be gained if the neuropsychiatric contact is made at the time of the patient's initial visit to the hospital and maintained during his stay, for thus psychotherapy can be reinforced by the benefits to be obtained from stimulative or sedative medication and from hydrotherapy. Furthermore, we can properly prepare the patient's mind as to the results that may be expected from our therapeutic treatment. The neuropsychiatrist is placed at a disadvantage when he is asked to treat the patient after every known drug or physical therapeutic measure has been used, without results being obtained, for the patient has then lost confidence in the efficacy of everything, and his whole attitude is, "I'm from Missouri; show me!"

There is a large group of patients with psychoneurotic mechanisms who voluntarily enter the hospital for diagnosis. Often these individuals have an underlying personality defect of the inadequate type, in which their retreat into the hospital is the manner in which they meet undesirable family situations. The understanding physician will realize that often the introspection is intensified by rest, and that the patient retreats, rather than meets, difficulties when he is allowed to prolong his stay amid the quiet, restful environment of the private room with a sympathetic nurse to wait on him, especially if the patient's wife is not sympathetic. Rest is a valuable measure, but when continued beyond the physiologic need of the body it becomes a very potent factor in the causation of chronic invalid states that may take years to overcome. The hyperkinetic, or overactive business man, who ordinarily gives the impression of reticence and composure, with an apparent absence of emotion, often must be very strictly consigned to a room if a rest program is to be used. This is the type for which a rest is of the utmost importance.

Depressive mechanisms often appear in the guise of hyperactivity when there is an underlying agitation, as a neurasthenic picture when the depth of the depression is sufficient to cause apathy, or as defective mental tension and delirioid reactions if toxic factors occur. Often compulsive and impulsive characteristics appear as complicating vacillations. The general rule may well

be made that the mere presence of psychoneurotic mechanisms is no clue as to their character, intensity or depth. The following case shows the need of carefully evaluating depressive reactions, although the clinical picture may be purely that of a psychoneurosis:

CASE 4.—A married man, aged 45, reported to the general admission clinic because of nausea, vague pains, insomnia and "nervousness." The physical factors disclosed a moderate degree of arterial hypertension, general tremor of the entire body, increased reflexes and increased psychomotor activity. A diagnosis of hyperthyroidism with an associated psychoneurosis of the anxiety type was made. The basal metabolic determination was plus 2. The patient on being referred to the neuropsychiatric service was found to be definitely depressed, with moderate agitation, simulating the symptom picture described above. Careful investigation as to minor mood changes disclosed the fact that the patient three months before had passed through a period of depression with suicidal thoughts and marked vacillation of interests. A visit to his brother in Detroit was such a contrast to life on the lonely plains of Iowa that it had brought about some improvement in his anxieties. Accordingly, he attempted to cover up and to conceal from his brother and the examining physician his innermost thoughts, but it was just this obvious overcompensation in his attempt to fight a losing battle alone that enabled us clearly to understand the severity of his trouble. After a psychotherapeutic talk of two hours, he seemed to gain some insight into his difficulties. Against our advice, the patient returned to Iowa the following day. He was instructed to write us concerning his progress. After reaching home he wrote his brother: "I would pay $2 an hour just to talk to that doctor for ten hours a day, I had so much relief from my contact with him." In spite of precautions on the part of the family, three weeks later the patient committed suicide by jumping into a water-hole cut in the ice for his cattle.

The symptom picture is not an uncommon one in a general hospital, for the patient with a depression first attempts to gain relief for many vague complaints. Too often, in the absence of organic disease, no true valuation is made as to the causative factors underlying the anxieties and the depression, for the patient is so much in contact with the general environment that he braces up when visitors come in to see him, and temporarily improves after brief reassurances. The average physician is therefore led astray in his observations of such cases. On the other hand, often in spite of attempts by the understanding physician to meet this situation, he finds that he is unable to meet it because the lay mind has no conception of the severity of the mechanisms. "This is merely a nervous state such as many of his friends have experienced"; these friends encourage him to "buck up," for in their understanding it is mainly through will power that he will be improved, all with the result that often suicidal attempts are precipitated. I would emphasize again, therefore, that the problem of differentiating between depressive states and psychoneurotic mechanisms in the general hospital is of vital importance.

In the general hospital, neuropsychiatric observation of patients prior to operation often prevents needless operative procedures but, most of all, aids not only the surgeon but also the patient in understanding what is to take place and what reactions of a nervous nature may be anticipated. As Cabot [9] has recently said, unless a therapeutic measure, and a surgical operation is such a measure, will be, in final analysis, of benefit to the patient, such a procedure is not justifiable. In our experience during the past year, the value of neuropsychiatric observation of psychoneurotic mechanisms in borderline cases in need of surgical measures has been repeatedly demonstrated. Almost daily, one or more patients are passed on by the neuropsychiatric division as to the reactions anticipated or the advisability of a suggested operation. Our figures corroborate those of Cabot [9] in showing that at least 90 per cent of all such patients are women. A complete understanding of the patient's personality, a preparation of the patient's attitude, so that he will not anticipate cure when only alleviation is expected, and suggestions to the surgeon as to points which should be stressed from a therapeutic angle is the goal to be sought. The majority of cases are from the gynecologic division, although observations of thyroid as well as nose and throat cases are also of outstanding importance. The mechanisms demonstrated are essentially psychoneurotic in character, with somatic references as manifestations of underlying maladjustments. Often, the psychogenic headache is a major expression of unwillingness to meet the demands of everyday life, and unless extreme care in the evaluation of these is used, radical nose and throat procedures in such cases will often lead to chronic invalidism, and incidentally frequently bring disrepute to the operator. True, there may be temporary alleviation of the difficulty, a psychic effect only, but later the alteration in tissue structure resulting from scar tissue contraction may fix in the mind of the patient the fact that grave pathologic conditions have been present and still exist. The following case demonstrates what is referred to:

CASE 5.—A married woman, aged 36, reported to the nose and throat department desiring some operative procedure for the relief of an intractable headache. There had been six previous nasal operations, as well as the injection of the sphenopalatine ganglion by some of the more noted men in this country. During the past five years the patient had spent an average of four afternoons a week undergoing nose and throat treatments without success. The nose and throat department referred the patient for psychiatric examination. Evaluation of the family situation revealed the fact that the patient had had an extremely difficult pregnancy, and that she and the husband were unwilling to consider further additions to the family. This frustration of normal instinctive desire and the resultant unsatisfied marital life was the background for the causation of these headaches. Unfortunately, such a violent fixation on the nose and throat has been brought about by the repeated operative procedures that the patient is still unable to emancipate herself completely from the feeling that pathologic changes of the nose and throat still exist. There has, however, been marked and unmistakable improvement in the headaches since a satisfactory adjustment of the patient's sex life has come to pass.

This mechanism brings to light another point; namely, that when fixation is present in an individual with an underlying nervousness or emotional infantilism, the neuropsychiatric adjustment and treatment may extend over years before the patient frankly realizes the situation. The lay mind is not sufficiently educated to appreciate this fact, so that after a period of six months with one physician, they may switch to another. In such instances, and many others, the status of the case should be very frankly put before the entire family. We may temporarily lose such patients from our clientele, but that they will come back sooner or later has been emphasized repeatedly by the return of such chronic ingrates after a period of even five or six years. The mere presence of definite focal infection should not always indicate or contraindicate operative procedure. While the operation may clear up a

9. Cabot, Hugh: Avoidance of Surgical Observations in Patients with Certain Types of Personality, Ann. Clin. Med. 5: 5-8 (July) 1926.

pair of "rotten" tonsils, it is not sufficient of itself to clear up a "rotten" home situation; hence, one should be very careful to see that the cause of the patient's vague aches and pains is actually due to focal infection and is not a psychogenic reflection of the stress and the strain of the environment. The removal of tonsils, as a relief for that syndrome when there is overactivity of the pharyngeal muscles with a well defined globus or other hysterical mechanism, will not be attended with success unless the patient's personality is understood and a correct mental attitude formed, on the part both of the patient and of the physician, as to the results that are to be obtained.

The admixture of hyperthyroidism as a causative factor in nervous syndromes, nervous syndromes simulating the hyperthyroid picture and vice versa, with need for careful evaluation of underlying conflicts is so universally recognized that discussion is not justifiable at this time. Such clinical relationship constitutes, however, a major problem in the general hospital.

Pelvic operations are unfortunately done in hundreds of cases in which the physician is constantly besieged by nervous women who desire relief from difficulties that are not the result of organic disease. Mere removal or suspension of some member of the pelvic viscera will never of itself cure the underlying marital maladjustment which is often a primary cause for disturbed physiologic function. We daily get the impression that it is not so much a lack of understanding on the part of the average physician as to the mechanisms underlying the difficulties, as it is an unwillingness to mix in a tense and tottering home situation for fear that he may be interfering with the sacred rights and privileges of the husband or wife and may be accused of browbeating the one or the other. Are we, however, doing our duty when we take the easiest way out and hang up an unoffending uterus that is crying out not because it is tipped backward but because of an associated pelvic congestion incident to an unsatisfied sex life? In the general hospital, opportunity is afforded us to come in contact with many of these gynecologic problems prior to marriage or during the first few years of marital adjustment. Here, again, I would emphasize the necessity for adjusting the personality deviations, as well as clearing up the misconceptions that so often lead to such maladjustments during this critical period. The following case illustrates this common occurrence:

CASE 6.—A single girl, aged 21, recently entered the hospital for "general weakness." Physical examination disclosed a moderate degree of nervousness, a moderate secondary anemia, a hemoglobin of 72 per cent, and a red blood count of 3,800,000. During the course of the examination she stated that a chronically inflamed appendix and the right ovary had previously been removed because of pelvic pain, without relief of many of her symptoms. Her family physician had recently recommended the removal of the other ovary. Examination failed to reveal the need of any operative procedure. Neuropsychiatric consultation brought out the following factors: As a child she was hypersensitive and of a retiring type of personality, assuming responsibility in undue proportion to her age and physical ability. Social adjustment was excellent, both while in school and later during her work. An older brother, who evidently had constitutional psychopathic tendencies of the inadequate type, assumed no responsibility for the care of the family. The death of the patient's father necessitated her leaving high school in the second year, much against her wishes, in order that she might assist with the financial burdens of the family. The patient was engaged to marry, but her fiancé was unable to support two families, and therefore it was imperative that she postpone marriage and continue with her work. Psychiatric investigation further disclosed the cause of the pelvic pain, as the patient was frank enough to admit that the lower abdominal pains were often the repressed manifestations of an unsatisfied sex life, caused by the nightly contacts with her fiancé. The onset of the patient's weakness was coincident with her learning from the family physician that the removal of the other ovary was imperative. She canceled her engagement. She could not reconcile marriage vows with ovarian castration. She was unable to return to work, and prior to coming to the hospital had spent five weeks in bed, attempting to solve her difficulties and her conflicts without reviewing them with any one.

This patient was encouraged to go home and advise her fiancé that there was no physical barrier to a normal and a happy married life. The organic aspects were not overlooked; the anemia, the malnutrition and the nervousness were all adequately investigated and treatment outlined. Without readjustment of her point of view, she would have been forever thwarted in her own life's ambitions and would have entered on a fettered life in which multiple repressions would ever have been present. The lesson to be gained from a mental hygiene standpoint is that similar problems may be seen daily in general hospitals, in the life histories of the terminal stages of such women. They are the women who have sacrificed their whole future because of peculiar ideas and misconceptions, often the result of unfortunate experiences, and the poorly censored and the ill advised statements of physicians who have not considered the patient or her aspirations.

COMMENT

The diagnosis and the analysis of the minor behavior mechanisms may appear to be a simple matter. On the other hand, the associated convalescent care is usually complex. The majority of our patients require a long period of intensive contact in outpatient surroundings after their discharge from the hospital. There is no standard procedure to be followed. There is no uniformity of life behavior patterns. For one patient, return to the home environment may bring about relief of symptoms with readjustment and emancipation following later. For another patient, complete removal and placement in a foreign environment is necessary. A thoroughly trained psychiatric case worker, who has adequate contact with the existing social agencies in the community, is a necessity. Few communities other than that of the Burke foundation have attempted to care for this problem in its relationships to the general hospital, and its importance is still too often minimized.

CONCLUSIONS

1. Borderline psychoneurotic mechanisms represent a field of mental hygiene as yet for the most part unexplored by most general hospitals.

2. Emotional conflicts, infantile responses and behavior, and unsatisfied sex strivings are seen masquerading as hyperthyroidism, as cardiac disease, and last, but not least, as pelvic disease.

3. Depressive mechanisms are often erroneously looked on as psychoneurotic mechanisms, with disastrous result to the patient.

4. When psychoneurotic mechanisms are overlooked, fixation of symptoms often results from ill advised operative procedures or too prolonged or too enthusiastic medical treatment.

5. Neuropsychiatric care in the general hospital differs in its method of approach and of treatment from that of the psychopathic hospital or clinic, and these differences must be clearly recognized.

6. Overcoming neuropsychiatric mechanisms is dependent on the time element, on humane understanding of social problems, and on the tact used in changing life behavior patterns, as well as on a frank recognition of the limitations of the lay mind in understanding the problems involved.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. WHOLEY AND SMITH

DR. J. M. BESSEY, Toledo, Ohio: A general medical case is never devoid of mental symptoms more or less severe. A boy, aged 12, suffered from a postdiphtheritic paralysis affecting largely the respiratory muscles. He had attacks of coughing, choking and fainting. The family thought that he was dying in these attacks. He was a very sick boy, being greatly depleted by the diphtheria. After consulting with the physician and determining on our course of treatment, I talked to the boy, striving to get his attention. I finally got him to admit that when he had one of his attacks, he feared death. I assured him that death was not likely to occur, and asked him to go to sleep. I hypnotized him and gave him the suggestion that he needed. I shall not attempt to say how far psychotherapy and how far medical treatment was responsible for the boy's rapid recovery. It illustrates the value of psychotherapy and indicates its place in medicine.

DR. EDMUND JACOBSON, Chicago: The two papers just presented encourage the belief that a new development is under way in the form of a study by the neuropsychiatrist of the maladies that heretofore have been assigned solely to the internist. Certainly, we as well as the patient have everything to gain by the application of methods of neuropsychiatry to the study of the average patient or of the neurotic patient who has symptoms which lead him to the care of the internist. However, we encounter serious difficulty when we attempt to determine in individual cases or in groups of cases the etiology of any particular set of symptoms. We are dealing, let us assume, with a case or a series of cases presenting the symptoms and phenomena of peptic ulcer, which the internist properly records and classifies as belonging in his field, yet which the neuropsychiatrist finds to have nervous aspects. What shall we say as to the fundamental etiology in such cases? Is it psychogenic or is it physiogenic? Very frequently, it is quite impossible to answer this question. Furthermore, in this growing field, it would perhaps be disastrous if the methods and conclusions which the neuropsychiatrist were to adopt were not founded on very careful study with adequate controls. For example, in the first paper it was said that lack of sexual satisfaction may lead to congestion in the pelvic region, to the extent of causing possible pain. That causes me to wonder what the evidence is for that conclusion? Has any one shown that pelvic congestion can arise? If we are not careful in drawing conclusions of that type, we will have nothing but a general field of speculation in neuropsychiatry applied to internal medicine. I think also, among other matters, of the problem of whether nervous tension is caused by suspected focal infections. It is commonly believed, and several British and American investigators have attempted to show, that focal infections, although not causing any symptoms, may give rise to nervous and psychic disturbance. So far as I know, those experiments were not adequately controlled.

DR. GEORGE B. LAKE, Chicago: We know that of the many people who suffer bereavements, financial reverses and similar mischances, by no means all develop psychotic or neurotic symptoms as the result of these experiences. We also know that many patients who have not had such experiences develop symptoms similar to those ascribed to maladjustment to the vicissitudes of life. There is such a thing as a "philosophy of life," coordinating the various activities in which people engage and the various things which happen to them into one comprehensible whole, so that they look on life as a complete thing, and the various parts of it fall into their proper relations to one another as they transpire. When a patient lacks such a coordinated idea of his life, he is extremely likely to become disoriented in his own cosmos. He fails to see the relations between his activities and the things which happen to him, and gets a confused idea of the relative values and proportions of the things which he feels from within and those which he experiences from without. It has seemed to me of immense value to try to give a patient some kind of a philosophy of life. In order to be able to help, the psychiatrist or general practitioner who is handling a "nervous" patient must, himself, be in possession of a philosophy of life. I urge that we give this matter consideration in connection with these cases; that we endeavor to work out for ourselves a philosophy of life, so that we may be able to give our patients help in working out one for themselves, and that we remember that, in addition to and aside from various pathologic changes in the brain or in the other organs of the body—toxic states, or disease states of whatever nature—there are definite abnormalities of the psyche which may be corrected by putting the patient in a position to develop some clear-cut idea of the relation which exists between the various incidents in his life.

DR. S. P. GOODHART, New York: My feeling is that one might sum up the treatment of psychoneurotic cases in the general hospital by saying that that is not the place for the psychoneurotic person just as soon as he is recognized as such. One of Dr. Smith's devices—the placing of a man in charge of a sympathetic nurse, when his life was not congenial, has been tried often. I do not think that it is a desirable procedure unless one wants to consider it as a solution to the individual's problem. The constitutional psychopathic person is the one who usually comes to the general practitioner, who often fails to recognize the psychopathic element in that type of individual, because the obtrusive mental symptoms characteristic of other more or less organic diseases are not manifested. Then, too, one is frequently confronted with the question, Shall one operate? This question is very important, and has to be decided carefully for each patient. If Dr. Wholey can give us his attitude toward what the general surgeon should do in such cases, I, as a neurologist and psychiatrist, should appreciate it very much.

DR. W. F. ROBIE, Baldwinville, Mass.: Thirty years ago it would have been utterly impossible to have an audience of this size interested for any length of time in the two papers read this afternoon. They would have been called inapropos, or improper, perhaps. Those two papers gave an outline of the proper and most important trend in medicine and psychiatry. The general practitioner (I was one for many years) is working toward the psychiatrist's attitude; and the psychiatrist is realizing that the general practitioner has to help out in these problems. My life has been spent in dealing with such cases as those to which Dr. Wholey has called our attention, including, particularly, the anxiety neuroses; the psychoneuroses (those which were considered not organic under the old classification), and even dementia praecox, so called, which was not ordinarily considered organic, but only when one with this condition became apparently incurable. Psychoneurotic persons should not be treated in general hospitals, unless the attending physicians have equipped themselves under the direction of some psychiatrist. Dr. Lake said that we should have a program and that we should be oriented before we try to orient anybody else. I have been trying first to orient myself and then to orient other people. That is the chief necessity, I think, in dealing with the psychoneuroses, not including, of course, psychopathic personalities per se and similar conditions. I realize, as Dr. Goodhart said, that it is a great problem. My particular problem has been the psychoneuroses, and I congratulate this section on having two papers so directly helpful in the solution of this problem as those which we have had presented this afternoon.

DR. THEODORE DILLER, Pittsburgh: Thirty years ago we were discussing railway spines and traumatic neuroses. Now we have settled these things; but these papers and the discussion indicate that we still have material for consideration. I wish to speak on two points very briefly. One is the relationship between hysteria and dementia praecox. My feeling at present is that many times they cannot be differentiated; that at bottom dementia praecox is hysteria, and hysteria is

dementia praecox, and that it is the commonest thing in the world, in my own experience, to diagnose hysteria first, and then make a diagnosis of dementia praecox later on. We considered the cause of mental disturbances and tried to evaluate the social situation and the family troubles long before freudianism was ever invented. We have done these things in an ordinary, commonplace way; and when it is revealed to a woman who has suffered great financial losses and humiliation that this is the cause of her trouble, one wonders, for the cause seems so obvious as not to need the analysis of a psychiatrist to discover it.

DR. GROVES B. SMITH, Detroit: I wish to emphasize everything that Dr. Goodhart said. Unfortunately, in a general hospital of the type with which I am connected, the patient does not come in as obviously psychoneurotic, but rather as a general medical case. During the time this patient is in the general hospital for a period of initial observation, one can make investigations as to his background, personality, and the type of treatment he should have, and thus a regular program can be arranged for placement in the environment he needs. I do not advocate bringing psychoneurotic persons into the hospital for treatment. It is important to emphasize that only four out of a hundred consecutive cases of psychoneurosis of the anxiety type were free from organic pathologic manifestations, so that in every patient coming into the general hospital in whom psychoneurosis is suspected, organic pathologic changes should be excluded, but after this examination, the individual should not remain in the hospital for long periods of time. Dr. Jacobson's statements bring us back to the conception which we must get away from, namely, the idea that the mind and the body are two separate entities, and that the individual's mechanism is functional or organic. The two go hand in hand. Not more than five cases out of a hundred can be listed definitely as having a purely organic or purely functional basis when psychoneurotic mechanisms exist. The type of persons in whom the sex life is of importance are those coming to the gynecologist for treatment. Often a local examination elicits evidence of congestion, leukorrhea and the spontaneous complaint or dragging pain in the lower part of the back. This may be psychogenic or secondary to organic factors, but it is there. Often, operative procedures and active treatment may not be necessary. At present, the important thing is for the gynecologist to find out whether there is not some underlying condition that has caused a fixation on a particular portion of the body. It does not matter whether congestion is the cause or not. If the patient has a fixation, the important thing is to find the causative factors and treat them, whether they are mental or physical. Dr. Bessey of Toledo is practicing neuropsychiatry, although he does not realize it.

DR. CORNELIUS C. WHOLEY, Pittsburgh: I agree with Dr. Lake that his approach to these patients is what I advocate; that is, an interest on the part of the general practitioner in the patient himself. Just a real human interest in the patient's problems is sufficient to take care of a great many of the minor neuroses. The matter of working out a philosophy of life for the patient depends on the ingenuity of the physician, and the capacity of the patient to comprehend that philosophy. Of course, the possibility of an individual being able to readjust himself depends on his make-up, and, as Dr. Lake suggested, the patient might be so fundamentally psychoneurotic that readjustment will be a prolonged problem, calling for very special knowledge on the part of the physician. In answer to the question of when surgical operation should be done, and what the surgeon should do in certain cases, it seems to me that the solution lies in teamwork between the surgeon and the neuropsychiatrist. I have found that medical men and surgeons are very keen in detecting psychoneurotic and psychopathic individuals, and at once call the psychiatrist in consultation. The circumstances of the individual case determine the question of operative intervention. Age, physical status and economic stress are some of the factors which have to be considered along with the mental condition. If Dr. Diller, a neurologist, misunderstood me in the way he seems to have, then I have little hope that I was clear to the rest of this audience. My object has been to stimulate more interest in this whole group of cases, and to emphasize the value of interest in the problems of the patient as well as in his symptoms, whether they are medical or surgical. In other words, we should recognize the fact that the patient has a mind and emotions as well as bodily organs; that it is through his brain that his mind and emotions function, and that his brain, and hence his emotions and mental reactions, are intimately bound up with bodily states and environmental circumstances, whether these are favorable or unfavorable.

THE DIAGNOSIS AND TREATMENT OF FOUR HUNDRED AND FIFTY PAINFUL SHOULDERS*

JENNINGS M. KING, JR., M.D.
PITTSBURGH
AND
GEORGE W. HOLMES, M.D.
BOSTON

The studies on which this paper is based were undertaken in an effort to explain the great frequency of negative roentgen-ray observations on films of the shoulder joint. Roentgen-ray examination is too often negative even with the best technic. In table 1 the roentgen-ray observations in 450 consecutive shoulder cases are tabulated. As can be seen, a negative diagnosis was made in 300, or two thirds of the cases. It was this high percentage of negative results that stimulated further study.

The clinical study of the cases was carried on in the roentgen-ray and orthopedic departments of the Massachusetts General Hospital. Access was had to the outpatient and house records of the patients, as well as an opportunity to be present at the operation when such was indicated.

Anatomic dissections were made on four shoulders through the kindness of the department of anatomy at the Medical School of Harvard University.

ANATOMY

The anatomy of the shoulder joint is well known and it should not be necessary to review it. However, we wish to substantiate Codman's [1] views of the size of the subdeltoid bursae, as opposed to that held by Baer [2] and by Painter.[3] In the four specimens dissected, the average diameter was 2½ inches, the bursae being only slightly elliptic in outline. Attention should also be called to the anatomic specimens reported by Meyer,[4] in which there was destruction of the bursae and other soft parts, between the acromion and the head of the humerus. This was present in varied degrees. In one case the long head of the biceps was completely worn away and had reattached itself in the bicipital groove. It was apparent in these studies that the changes had occurred from friction alone. In view of these facts, together with successful operative removal of the subacromial bursae by Baer and others, it would seem that its importance in shoulder function has been overemphasized.

---

* From the Department of Roentgenology, Massachusetts General Hospital.

1. Codman: Bursitis Subacromialis or Periarthritis of the Shoulder Joint (Subdeltoid Bursitis), pamphlet, June 9, 1908.
2. Baer, W. S.: Operative Treatment of Subdeltoid Bursitis, Bull. Johns Hopkins Hosp. **18**: 282-285 (June) 1907.
3. Painter: Subdeltoid Bursitis, Boston M. & S. J. **156**: 345 (March 21) 1907.
4. Meyer, A. W.: Unrecognized Occupational Destruction of the Tendon of the Long Head of the Biceps Brachii, Arch. Surg. **2**: 130 (Jan.) 1921; Further Evidences of Attrition in Human Body, Am. J. Anat. **34**: 241-267 (Sept.) 1924.

The close approximation of the coracoid to the lesser tuberosity, as described by Goldthwaite,[5] is recalled:

> The two bones are in close apposition, the tip of the coracoid resting against or being opposite the lesser tuberosity of the humerus. The amount of contact between these bones depends upon the shape of the bones and the position of the shoulder with reference to the rest of the body. If the shoulder is allowed to droop, the whole shoulder is rotated forward, outward and downward; in this rotation the coracoid and acromion processes are naturally brought forward and downward, and the point of contact of the coracoid process with the humerus is made necessarily lower and must be more constant. At the coracoid process a bursa, the subcoracoid or the coracobrachial also exists, this being situated between the tip of the coracoid process and the outer surface of the capsule of the shoulder joint as it extends to and over the lesser tuberosity of the humerus. While this bursa is less exposed to external violence, it is much more liable to injury, since in much of the use of the arm or in the common attitudes which are assumed, the bursa is subject to irritation from the pressure of the lesser tuberosity of the humerus against the coracoid process.

TABLE 1.—*Statistics of Four Hundred and Fifty Consecutive Cases of Painful Shoulders*

	No. of Cases	Percentage of Cases
ARTHRITIS		
Tuberculous	5	1.1
Syphilitic	1	0.2
Hypertrophic	3	0.6
Infectious	3	0.6
Acromioclavicular	8	1.7
	20	4.4
FRACTURES AND DISLOCATIONS		
Fracture of head other than greater tuberosity	9	1.9
Fracture of acromium	1	0.2
Fracture of glenoid	1	0.2
Fracture of greater tuberosity (uncomplicated)	52	11.4
Fracture of greater tuberosity + relaxed capsule	1	0.2
Fracture of greater tuberosity + dislocation	8	1.7
Dislocation, uncomplicated	22	4.8
Separation of acromioclavicular joint	3	0.6
	97	23.3
Relaxed capsule	1	0.2
Old fracture of scapular with spot atrophy	1	0.2
Subacromial bursitis	13	2.8
Periarthritis	6	1.3
Postoperative deformity malignancy	1	0.2
Deformity, birth palsy	2	0.4
Foreign body	2	0.4
Old traumatic	4	0.8
Osteomyelitis	2	0.4
Myositis ossificans	1	0.2
Negative	300	66.6

We would also stress the proximity of various structures to the true shoulder joint. The capsule is dependent for its strength on the tendinous insertions of the supraspinati and the infraspinati, the subscapularis and the teres minor. The subcoracoid and subacromial bursae, as well as the biceps tendon, are separated from the true joint only by a very thin capsule. Inflammatory changes involving any one of these structures will quickly involve the others.

DIAGNOSIS

Many articles dealing with the diagnosis of shoulder conditions would give the impression that shoulder pain is caused in the main by one or two conditions, particularly subacromial bursitis. This conception, which seems to us to be false, can be explained by the anatomic study of the shoulder joint. Any marked inflammatory process, whether due to trauma, direct or indirect or to infection, must affect to varying degrees the true joint and bursae about the joint as well as the structure first involved. It is a resultant, much as peritonitis is a resultant of any inflammatory process that involves the abdominal viscera, or it may be compared to a pleurisy following a fractured rib. It is true that the treatment of many of the conditions occurring about the shoulder is so nearly the same that an accurate diagnosis is often unnecessary from the clinical point of view. From a more academic standpoint, however, it may be of considerable interest. We must not assume that our diagnosis is correct because a certain line of treatment has given a good result. The majority of shoulder lesions will be benefited by rest in abduction and external rotation, followed by persistent physical therapy.[6]

Treatment instituted following an etiologic rather than a symptomatic diagnosis should secure quicker and more lasting results.

The rôle of extrashoulder lesions as a cause of painful (and sometimes stiff) shoulder joints should be emphasized. Tables 2 and 3 are suggestive.

It is generally known that various cervical, thoracic and abdominal lesions may cause pain in the shoulder, but it is not always appreciated that referred pain may lead to a stiffened shoulder joint. The capsule of the shoulder joint, like that of the knee joint, is dependent for its integrity on the tone of the various muscles whose tendinous insertions make up its strength. We are familiar with the physical signs present in knee joints affected only with pain referred from a tuberculous hip. Similarly with relaxation of the shoulder capsule following nonuse from referred pain, the mechanics of the joint is so interfered with that injury and inflammatory changes often follow. A diagnosis of bursitis would be correct as far as it goes, but an etiologic diagnosis is essential for the good of the patient.

TABLE 2.—*Relation of Shoulder Pain to Diseases of Chest, Gallbladder and Alimentary Tract*

One hundred successive patients referred for roentgenologic examination of the chest, gallbladder or alimentary tract were asked if they had shoulder pain.

A. Shoulder pain present	26
B. Shoulder pain not present	74
In group A, roentgen-ray examination showed pathologic changes in the chest or abdomen in	19 cases, or 73%
In group B, roentgen-ray examination showed pathologic changes in the chest or abdomen in	20 cases, or 27%

TABLE 3.—*Diagnosis in Fifty Cases*

A careful study of fifty consecutive cases (negative by roentgen ray) in which the chief complaint of a painful shoulder was made. In some cases the diagnosis became apparent only after the case had been followed for some time. In no case was a diagnosis made unless the observations were conclusive.

	No. of Cases	Per Cent
Insufficient observations for a positive diagnosis	8	16
Recent sprain; roentgenogram taken to rule out fracture.	14	28
Traumatic myositis; roentgenogram taken to rule out fracture	2	4
Hypertrophic arthritis	5	10
Subcoracoid bursitis	4	8
Subacromial bursitis	2	4
Relaxed capsule, following lower arm fixation	1	2
Apparently extrashoulder		
Cervical ribs	2	4
Cervical arthritis	3	6
Axillary abscess	1	2
Pleurisy	3	6
Tuberculosis with pleural effusion	1	2
Painful shoulder, without limitation in motion, but marked gastric disturbances	4	8

The history of an injury is frequently without importance. Most patients with pain anywhere in the body can call to mind some injury to the affected part. This history is often not reliable. Considerable time and

5. Goldthwaite: An Anatomic and Mechanical Study of the Shoulder Joint, Am. J. Orthop. Surg. 6: 579, 1909.

6. By physical therapy is meant activation of muscles, with such accompanying measures as will minimize muscular atrophy and loss of muscle tone.

care are usually necessary to differentiate between a real and a fancied injury.

We are purposely avoiding the conditions that are diagnosed almost at sight or by roentgen ray. We[7] called attention to the necessity of taking plates in external rotation in shoulder injuries in a previous paper.

Traumatic myositis (charley horse), involving the deltoid, is a frequent accompaniment of more severe injuries, but its frequency as the major disability is sometimes overlooked. However, with this condition in mind the diagnosis should ordinarily be easy. The chief danger lies in overlooking other injuries. There should be a point of tenderness at the location of the direct trauma. Activation of the deltoid without motion and with the arm held abducted to 90 degrees should produce pain. Passive motion should be without pain, except in abducting the arm to a degree that stretches the injured deltoid fibers.

Traumatic myositis involving any of the muscles inserted into the capsule must also involve the deltoid. Unless there is actual rupture of these muscles, the diagnosis is difficult. Injury to these muscles must be accompanied by injury to the capsule, and there is as a result pain on passive motion. Passive motion may be limited by only a few degrees but, if present, signifies injury to structures deeper than the deltoid. Complete tear is diagnosed by loss of function; i. e., abduction to 35 degrees of the supraspinatus, external rotation of the infraspinatus and teres minor, and internal rotation of the subscapularis.

Ligamentous tears are caused usually by carrying the humerus past its normal range of motion as opposed to a direct blow, the ordinary cause of myositis. They are always accompanied by limitation of motion in the direction, which puts strain on the ligament injured. The history of a twist with limitation of passive motion practically equal to the limitation in active motion, together with a negative roentgenogram, is usually sufficient for a diagnosis. There should also be tenderness over the torn ligament.

ARTHRITIS

With arthritis to be considered, the taking of the history cannot be overemphasized. This applies not only to painful shoulder joints but also to all joints. It is not sufficient to ask the patient "Do you have pain in any other joints?" and then be satisfied with a history of more or less vague injury. One must ask about each joint. One must be satisfied that the patient had a real injury which was followed and never preceded by any disability. In a case with no other joint involvement, the burden of proof of a diagnosis of arthritis rests with the physician. With other joints involved, the burden of proof of a diagnosis other than arthritis rests with the physician.

As pointed out in a previous paper, a negative roentgenogram does not rule out arthritis. Pemberton[8] says, "It is clear that arthritis and its accompanying phenomena may exist for many months, producing gross superficial changes without resulting in evidence that the roentgen ray can detect, except in the increased shadows in the soft parts." As a nonweight-bearing joint, difficult to roentgenograph, the shoulder is much less likely to show pathologic changes by roentgen ray than other joints. With this exception the diagnosis of arthritis in the shoulder is the same as in other joints and so does not need further discussion in this paper.

SUBCORACOID BURSITIS

An anatomic explanation for subcoracoid bursitis has already been given. Ruling out arthritis and injury, we cannot help but be impressed with the fact that in persons with round shoulders, there is a logical explanation of many causes of shoulder pain. Thomas ascribed many shoulder conditions previously ascribed to subacromial bursitis as due to a tight axillary capsule. When they were treated with stretching, the results were excellent. After a study of the rôle of the subcoracoid bursa, it is quite reasonable to presume that his cases were inflammation of this bursa. The symptoms described by Thomas are those found in adhesive subcoracoid bursitis. It is quite evident that an adherence of this bursa would produce signs similar to a tight axillary capsule.

The history, occupation and posture are all of prime importance in diagnosing this condition. The proximity of the tuberosity to the coracoid should be noted. There will be tenderness at their meeting point. Late cases presenting adhesions will show marked limitation in external rotation and abduction. In more recent cases, relief will be given when the arm is externally rotated and there will be a corresponding increase in pain if the humerus is pressed toward the coracoid.

SUBACROMIAL BURSITIS

In discussing this condition let us bear in mind that (1) all inflammatory processes involving the joint and its proximal structures will in time involve this bursa, and (2) when a case has been diagnosed as subacromial bursitis, and treated in the accepted way, relief must not be accepted as a guarantee of a correct and complete diagnosis. Too frequently it is a symptomatic diagnosis. It should be made only after all possible etiologic agents have been ruled out. Dawbarn's sign (tenderness just below the acromion process and to the outer side of the bicipital groove, which disappears on abduction of the humerus), which has been considered by some as almost pathognomonic, is definitely not pathognomonic. It is equally pathognomonic of fracture of the greater tuberosity, the most common bone injury in this region. It is found in sepsis in the true joint. Moreover, when these conditions are ruled out, it may simply mean that the bursa is affected secondarily to an arthritis of the true shoulder joint or the acromioclavicular joint, relaxed capsule or subcoracoid bursitis. In case 1, without doubt, the subacromial bursa was involved.

CASE 1.—J. S., a white woman, married, aged 48, awakened with pain in the right shoulder and arm, about May 15, 1925. She was treated by the family physician with baking and massage. She was also given a sling, and had all her teeth removed. The pain was distinctly worse at night. When seen in the outpatient department, July 26, 1925, there had been no improvement. The patient stated that she had not had any previous joint trouble and injury. On examination of the arm, it could be extended to 45 degrees. There was present about 10 degrees of external rotation and abduction. On attempts at abduction, the scapula moved with the humerus after about 10 degrees. The roentgen-ray examination was negative.

July 29, an open operation revealed dense adhesions in the bursa which were cut and the arm was put up in abduction and external rotation. The patient was followed regularly in the outpatient department after discharge. There had been little or no relief until after active physical therapy was insti-

7. King, J. M., and Holmes, G. W.: A Review of Four Hundred and Fifty X-Ray Examinations of the Shoulder, Am. J. Roentgenol. **17**: 214-218 (Feb.) 1927.

8. Pemberton, Ralph: Studies on Arthritis in the Army Based on Four Hundred Cases, Arch. Int. Med. **25**: 351-464 (April) 1920.

tuted, August 25. September 15, there was clinical but no roentgenographic evidence of cervical arthritis. November 11, there were beginning arthritic symptoms in both knees. About this time her old outpatient record was found, which recorded joint complaints some years before. However, she continued to deny having had joint pains previously. By February, 1926, her condition was apparently stationary. There was still considerable limitation in abduction and external rotation.

In this case the subacromial bursa was certainly involved, but the real diagnosis was missed. The diagnosis of subacromial bursitis should be made only by elimination.

ATTRITION

The work of Meyer, though quite complete in its anatomic record, lacks the very important clinical records which are necessary to give us a definite diagnostic procedure. The diagnosis of this condition except in an extreme form then is most difficult. It will continue to be so until more cases in which there is a good clinical record have been seen at autopsy presenting these changes. Until such studies have been completed, one can merely reason what symptoms the erasure of parts would give in this locality. It is fair to assume that age and occupation must play a considerable part in the production of a condition so essentially due to wear and tear. When a constant roentgen-ray technic is used, giving always the outline of the acromion and the acromial end of the clavicle from the same angle, the suggestion of a thinned acromion should at least be given, when the process is advanced. The destruction of soft parts must give symptoms varying with the part most involved.

RELAXED CAPSULE

The developmental and anatomic grounds for this condition have been hinted at previously. Those who have had the opportunity to work in a clinic where frequent biopsies are performed are well acquainted with the knee joint which shows on external examination a marked similarity to a tuberculous infection, but which at biopsy reveals only a nontuberculous synovitis.

We are all, too, familiar with the knee joint which, following injury and a short period of immobilization, persists as a chronic disability. The reasons are anatomic. Forty-eight hours after a knee injury of any severity, one will find the muscles about the knee joint, particularly the vastus internus, showing what some term a rapid atrophy. At least, there is on attempts at contracting the quadriceps a marked difference in the consistency of the muscles of the two thighs. The knee joint is dependent for its strength on the muscles which are inserted into and go to form the capsule. With relaxation or atrophy of these muscles, the integrity of the joint is so affected that there is a constant give of motion in directions that are not physiologically correct. One is able, in sleeping normal persons whose muscles are relaxed, to pull on the foot and snap the knee joint as some persons are able to snap their finger joints when awake. A similar, but less evident, trauma with each step changes an acute knee strain into a chronic strain. The capsule of the shoulder joint, in this respect, is similar to the knee joint. It differs in that it has a convenient bursa which becomes affected from the resulting inflammatory changes, and which is unjustly blamed for the existing disability. Of course, secondary changes with adhesions do occur in the bursa. Treatment directed at breaking up these adhesions, followed by measures to restore muscle tone, should also give the desired results.

The roentgen-ray diagnosis of this condition will be overlooked unless films are taken of the two shoulders in the same position. It is also necessary to have traction applied to the arms either from gravity, if the exposure is made in the sitting position, or by a direct pull, if in the lying position. Extreme degrees have been confused with dislocation. The chief importance of this condition is that it scarcely ever occurs in a shoulder treated correctly.

PERIARTHRITIS

To make a diagnosis of periarthritis seems a step backward, but at least it can be said that it is an honest confession of ignorance of the primary etiologic factor. It is, we believe, justifiable when a painful disabling joint is present which cannot be explained as primarily some other condition. It is a more nearly honest attitude than to call it a neuritis or a bursitis.

TREATMENT

The treatment of a painful shoulder resolves itself naturally into a treatment of the cause. There are, however, several well grounded principles which are applicable to almost all shoulder lesions. Every condition discussed separately under the heading of diagnosis will be benefited by the position of abduction to 90 degrees and external rotation. Each of these conditions with the exception of recent traumatic myositis will be benefited by physical therapy, with the stress laid on activation of the muscles surrounding the joint. Traumatic myositis must of course be allowed approximation of the fibers at rest. Rupture of the spinati or rotators should be sutured. Activation followed by graded use and decreasing amount of support may follow in from four to six weeks, depending on the severity and extent of the muscle rupture.

The treatment of arthritis is so varied that we will be content with a few suggestions which have in our experience given average or better results. Hypertrophic arthritis resulting apparently from long-standing strain, usually in an unnatural position, may be successfully treated by correcting that strain. Anatomically the shoulder is most stable when thrown backward. And, too, for the majority of persons, squaring of the shoulders will bring different surfaces of the joint together and thus aid in giving relief.

Atrophic arthritis, frequently classed with infectious arthritis but probably rarely associated with focal infections except as a part of a general run down condition, may be treated to good advantage with attention to the general physical condition, colonic irrigations, abdominal massage, correction of body mechanics and a lowering of the carbohydrate diet. To this must be added the ordinary physical therapeutic and orthopedic attention to the individual joints. Focal infections must be cleared up as a part of increasing the general body resistance.

The treatment of subcoracoid bursitis is evident. It is essential to separate the irritating points; i. e., the coracoid and the lesser tuberosity.

One of us has recently had the opportunity of working with Dr. Goldthwaite for two months. With his permission, we are citing two of his cases. Both patients happened to be physicians and for that reason their history and opinions of progress are perhaps unusually valuable.

CASE 2.—A. T. M., aged 54, seen, June 18, 1926, suffered a severe wrench to his shoulder and neck in a fall in 1918. Three months later a similar accident occurred. It troubled

him off and on since that time. He was treated by a number of physicians, who considered the condition an infection and treated the teeth and tonsils. Two weeks before examination, following a motor ride, it became distinctly worse, and he had worn a sling for the past week. He was of normal anatomic type, leaning toward the heavy; he stood with the body considerably relaxed, the shoulders forward, all motions of the shoulder carefully guarded, with marked tenderness over the tip of the coracoid. The shoulder motions were freer when reclining.

When seen, June 28, the patient had been kept in bed with the arm raised on a pillow at the side. Hot fomentations and postural exercises had been given. Relief from pain was almost immediate. Motion was distinctly more free, but external rotation was still considerably limited.

July 16, he had been seen several times since the last note. There had been no pain. Motion was free except in the extremes of abduction and rotation.

The history in the next case was obtained in part from the records of another orthopedic surgeon, who treated the condition as a subacromial bursitis until June 9; then because of his absence the patient was referred to Dr. Goldthwaite.

CASE 3.—E. F. H., aged 43, seen, May 5, 1926, had been thrown from a horse in 1915, striking his shoulder and being laid up for eight weeks. There was no further trouble until 1923, when he was awakened by an acute pain in the shoulder. He had had pain and stiffness in the shoulder off and on since that time. Following two attacks of influenza in the winter of 1925, he had lost 14 pounds (6 Kg.) and was much run down. The teeth and sinuses were negative by roentgen ray. The tonsils were hypertrophied, but there had been no tonsillitis. The patient was slender, the posture somewhat relaxed, with the shoulders forward; there was no evidence of arthritis. The left shoulder was guarded in the movements of abduction and external rotation. There was pain on putting the arm behind the back of the neck. There was tenderness external to the tip of the coracoid, and the pain on abduction was in the typical range found in cases of subdeltoid bursitis.

May 10, there was definite limitation of motion, 60 degrees of abduction, and limitation of external and internal rotation. The patient was given a sling, was told to avoid driving, and was given daily baking and abduction exercises.

May 19, there was practically normal range of motion and very little catch.

June 2, no limitation of motion; exercises were continued.

June 9, the patient was first seen by Dr. Goldthwaite. The shoulder had been excessively painful for two days. The patient was unable to sleep and was almost hysterical with the pain. He ascribed it to an 80 mile motor trip. There was acute sensitiveness over the subcoracoid bursa. A sling was applied and he was ordered to bed with pillow positions explained. Sodium bicarbonate and small doses of acetylsalicylic acid were ordered. The following day he stated that the pain had persisted for about eighteen hours and then had suddenly subsided.

June 21, the shoulder was distinctly less painful on motion. Postural exercises were planned.

June 23, the full amount of motion was possible. The importance of the fully erect position was explained.

August 25, by telephone, he reported that he had had the tonsils and adenoids removed, followed by a *Streptococcus hemolyticus* upper respiratory infection. He was just now able to be up and about. Despite this illness the shoulder had continued to improve. There was no pain except on extremes of motion and he was able to sleep on that side, something which he had been unable to do for two years.

It is interesting to note that in case 3 symptoms followed after a change from an active life to one in which the patient was constantly at desk duty, with resulting postural relaxation. Both patients developed acute symptoms following a long automobile drive. Irritation of this bursa is particularly common from driving a car any distance. The discomfort can be relieved almost instantaneously by throwing the shoulders back. After talking with a number of persons who do a great deal of driving, we are persuaded that this is quite a common occurrence. If it is prolonged it is a frequent cause of stiff and painful shoulders.

The treatment of primary acute subcoracoid bursitis is putting the arm in abduction and external rotation followed by intensive physical therapy and correction of postural defects. In the chronic cases the adhesions must be broken up either by gradual stretching or under ether. This should again be followed by correction of postural and occupational irritants.

OTHER CONDITIONS

Until more is known about attrition, its treatment cannot be suggested.

Were each shoulder case treated by activation of muscles in the acute stage, relaxation of the capsule would probably never occur. But, when it has occurred, the shoulder should be put up in abduction and external rotation, followed by measures to develop the tone of the muscles supporting that joint.

If one is unable to locate the primary cause of periarthritis, treatment is the same as that just described for relaxation of the capsule.

We should be reminded again of the extrashoulder causes of stiff and painful shoulder joints. Treatment must be instituted toward the etiologic agent as well as to prevent capsular relaxation and periarthritis.

Previously in this article attention was called to the frequency with which fractures of the greater tuberosity occur with dislocation. The following case suggests the logical treatment:

CASE 4.—L. G., a white man, fell down a flight of stairs, June 6, landing on his shoulder. The following day a closed reduction of the dislocation was done. June 22, an open operation disclosed that the tuberosity was attached proximally to the supraspinatus and distally to the periosteum, so that abduction of the humerus allowed the fragment to separate from the humerus, while adduction drew it close to its correct position.

It would appear from this case as well as the results frequently obtained by treating such cases with adduction that the greater tuberosity is not pulled off by the supraspinatus but is knocked off as it passes under the glenoid or acromion. Certainly it is unreasonable to suppose that a direct pull from the supraspinatus could detach it without tearing the periosteum distal to it. It is of primary importance in the treatment. Abduction separates the fragment while adduction holds it close to its point of separation. Here, too, physical therapy must be instituted early.

SUMMARY

1. The capsule of the shoulder joint is dependent for its strength on the tone of the muscles having their insertion in the capsule. Atrophy of these muscles will be followed by relaxation and chronic strain.

2. The thinness of the capsule, together with the proximity of bursa tendons and bone, results in an infection, which is primarily of one structure, soon involving the others.

3. Extrashoulder lesions are a common cause of painful and, at times, stiff shoulders.

4. It is difficult to rule out a diagnosis of arthritis if other joints are troublesome. Negative roentgen-ray observations are of little diagnostic value in arthritis.

5. Most persons are subject to constant irritation of their subcoracoid bursae, as a result of posture. Limitation of external rotation is more characteristic of subcoracoid bursitis than any other shoulder lesion.

6. Relaxed capsule is a frequent cause of stiff and painful shoulders. Physical therapeutic measures directed toward preventing atrophy must be instituted early in all cases.

7. Inflammation of many of the structures surrounding the shoulder joint occurs in almost all painful shoulders. A diagnosis of periarthritis is legitimate when the primary etiologic agent is obscured.

8. The necessity of observing and treating the extra-shoulder causes of pain is evident.

9. Fracture of the greater tuberosity occurring with dislocation may best be treated by adduction of the humerus.

1210 Highland Building—265 Charles Street.

COLOSTOMY AND POSTERIOR RESECTION FOR CARCINOMA OF THE RECTUM *

FRED W. RANKIN, M.D.
ROCHESTER, MINN.

The evolution of the operative treatment of carcinoma of the rectum has established certain principles which, applied to a large group of cases, indicate that in the main two types of maneuver are most serviceable: the one-stage and the multiple-stage abdominoperineal operation. Experience has taught that the two cardinal fundamentals in dealing with carcinoma of the rectum are the establishment of an artificial anus and the removal of the local growth with wide dissection of the contiguous tissues, which are apt to be invaded by carcinoma, as well as the adjacent lymph nodes. The earlier operations for carcinoma of the rectum, neither of these principles being recognized, were, in reality, local cauterization or excision of the growth, and were in practically all instances followed by rapid and fatal recurrence. The establishment of an artificial anus, inguinal or through the rectus muscle, is advantageous from two standpoints: it permits of the highly essential abdominal exploration which rules out operation in those cases in which metastasis to the liver or gross lymphatic involvement has already taken place, and it provides for a more comfortable and readily accessible anus which, in most instances, by the use of mechanical devices, may be partially controlled or at least comfortably disposed of without great inconvenience or objectionable odor. On the other hand, the one-stage perineal resection had the obvious disadvantage of being a blind procedure, and it sometimes led the surgeon into a formidable operation when he knew nothing of intra-abdominal metastasis and compelled him to leave a sacral anus which he could not hope to control. The patient's objection to abdominal colostomy is largely sentimental, and is prompted by the fact that he is able to observe a part normally never more than visualized.

It is a time-worn axiom that the operation should be fitted to the patient rather than the patient to the operation; hence, it is unwise to advocate any single type of procedure dogmatically. Unquestionably there is a definite field for operations of the Quénu-Tuttle or Harrison Cripps type, and, in the evaluation of end-results in the whole group of cases of rectal carcinoma, these procedures find a place. When the surgical risk is grave, the disease advanced, and obstruction present, these types of maneuver, even though there is little control following them, permit the patient to die comfortably from internal metastasis. The eradication of an ulcerating, attached malignant neoplasm, by eliminating much of the infection, reduces or eliminates pain. Ordinary metastatic lesions, especially when situated in the liver, are most often painless and do not tend to become infected. In the growths in the anal canal, likewise, operations of these types may be occasionally used because the lymphatic extension is toward the groin rather than upward.

In the series which I am reporting, the majority of the cases were treated by graded procedures of the following types: (1) colostomy and posterior resection of the growth; (2) the Jones or the Miles procedure, especially applicable to carcinoma of the rectosigmoid and high rectal growths; (3) the Coffey operation, and (4) the Quénu-Tuttle or Harrison Cripps type of perineal excision.

From Jan. 1, 1916, to Jan. 1, 1926, resection was performed for carcinoma of the rectum in 602 cases at the Mayo Clinic. All these growths were true rectal carcinomas, and the series does not include malignant tumors situated at the rectosigmoid juncture, which present a different clinical picture and frequently

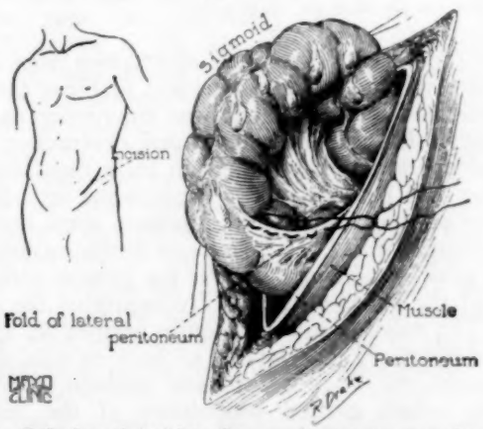


Fig. 1.—Left lateral incision close to the anterior superior spine, a split muscle incision being used. The sigmoid is pulled up, and a purse-string suture is inserted from the lateral parietal peritoneum over to the bowel to close off the lateral space through which the small intestine might protrude. The colostomy is to be made above this suture.

necessitate the choice of a different surgical procedure. Of those patients dismissed from the hospital, 511 (93 per cent) were traced: 308 (60 per cent) had died, and 203 (40 per cent) were living. In this series, the males predominated over the females in the proportion of 378 to 224. The hospital mortality of the whole group was 8.9 per cent (fifty-four cases). The average age in this series was 52.6 years. The average hemoglobin was 72.7 per cent, and the average blood pressure reading 136 systolic and 82 diastolic.

SYMPTOMS

Bleeding of one type or another was the most prominent symptom in 539 cases (89.5 per cent). It ranged from massive hemorrhage, which gave rise to alarming symptoms, in forty-one cases, to the customary type of bleeding observed in cases of rectal carcinoma, blood on the stool or mixed with the stool.

Constipation was the predominant complaint in 332 cases (55 per cent), and diarrhea was noted as the most

---

* From the Division of Surgery, Mayo Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1927.

prominent manifestation in 125 cases (20 per cent). The diarrhea varied from mild irritability of the bowel, evidence of which was elicited only on close questioning, to eight or ten stools a day. Likewise in the group in which constipation was the predominant symptom, marked variation was observed in the description of it, some patients considering constipation (as it is usually conceived of) as a normal state, realizing that obstruction was present only when the use of drastic purgatives failed to relieve. The latter group includes forty-three

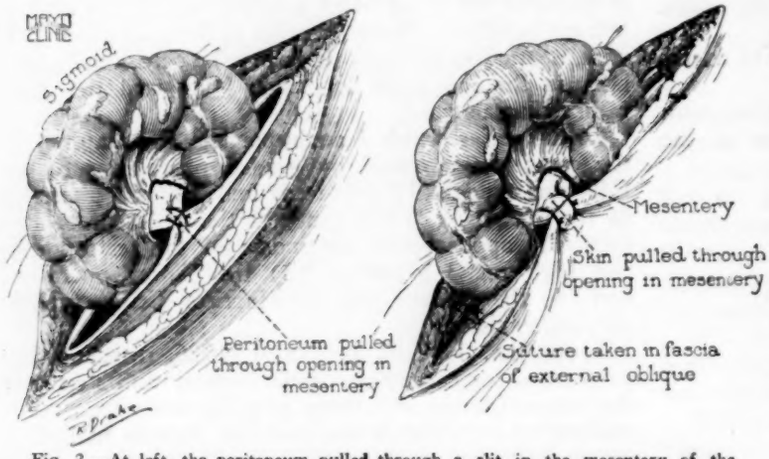


Fig. 2.—At left, the peritoneum pulled through a slit in the mesentery of the sigmoid; at right, the skin pulled through the same opening under the bowel. The peritoneum is closed up snugly around the bowel, and a few catgut sutures placed in the aponeurosis of the external oblique. The skin is closed with silkworm gut. Sutures are not placed in the bowel itself.

cases (7 per cent) in which obstruction was definite but not complete. The obstruction in these cases was subacute, and in no instance was emergency operation necessary. Clinical obstruction and obstruction at the time of operation vary widely in their manifestations. In more than half the cases of carcinoma near the anal canal or at the rectosigmoid juncture, some degree of obstruction is noted. It manifests itself, on inspection of the bowel, in dilatation above the growth with thickening of the bowel coats and frequently of the mesentery. The colon is normally quite permeable, and this status is increased considerably under even mild obstructive conditions. For this reason, perhaps, more than for any other, graded procedures, if the lesion is obstructing to any degree whatever, are satisfactory.

PATHOLOGY

Pathologically, all growths of the rectum are of the adenocarcinomatous variety, derived from the cylindric cells of Lieberkühn's follicles. The growths of the anal canal differ in some respects, and epithelioma is frequently found here. The different varieties classified according to their physical characteristics fall into the papillomatous, adenomatous or colloid types, depending on whether the growths are warty or whether there is an excess of mucoid material predominating. Miles considers the mucoid carcinoma a degenerating type of the adenomatous or papillomatous variety with both epithelial and connective tissue elements taking on this particular change. The pathologic type and the site of the growth both have important bearings on operative procedures, not only from the standpoint of operability but likewise as to the type of symptoms produced. The three commonest sites of rectal carcinoma are at its juncture with the sigmoid flexure, in the ampulla of the rectum, and in the anal canal. The ampullary growths usually involve only portions of the wall of the bowel, although complete circumferential involvement producing obstruction or filling of the lumen, if the tumor is of the papillomatous or polypoid variety, is quite common. Frequently, starting close to the mesenteric border, by infiltration and extension it affixes itself to the fascia propria of the rectum, producing immobility rather than encircling the bowel and producing mechanical obstruction. Growths in the anal canal, on the other hand, are usually found opposite the mesenteric border and are rarely, except in the advanced stages, completely obstructing.

Lymph nodes were involved in 238 cases (39 per cent). While this seriously affects the prognosis, the invasion of one group of nodes adjacent to the malignant tumor does not necessarily preclude operation, nor are hard palpable nodes always an indication of carcinomatous involvement. If, on palpation at exploration, such a node is felt, microscopic examination not infrequently shows that it has no malignant characteristics. It is a fortunate fact and well known clinically that rectal carcinoma remains local for a comparatively long time and that the lymphatic spread is relatively slow, so that, while the prognosis is vitally influenced by the presence or absence of lymphatic involvement, it does not necessarily militate against a favorable outcome.

OPERABILITY

Operability in cases of carcinoma of the rectum is largely an individual problem, and what may be deemed an inadvisable case for resection by one surgeon may be accepted by another. There are four factors which determine largely the operability of an individual growth: (1) distant metastasis to the peritoneum or liver; (2) diffuse lymphatic involvement; (3) fixation of the growth to vital adjacent structures, and (4) the pathologic classification of the growth. Since the difficulty of estimating mortality statistics is in direct proportion to the standards of operability, which of necessity must vary widely, it is improbable that any two groups of cases will represent the same standard of acceptance for operation, depending on these four factors. While metastasis to the liver definitely excludes resection in most cases, save in that small group in which resection is deemed advisable for palliation, the second, third and fourth factors mentioned are extremely variable. Fixation to the prostatic capsule does not necessarily prohibit removal unless it is densely firm. In quite a few instances in the Mayo Clinic, a part of the prostate and both seminal vesicles have been removed in a second-stage perineal resection. Fixation of the growth in the hollow of the sacrum generally renders it more accessible to operation than elsewhere, and usually one may find a line of cleavage which permits the entire sacral cavity to be cleared out satisfactorily.

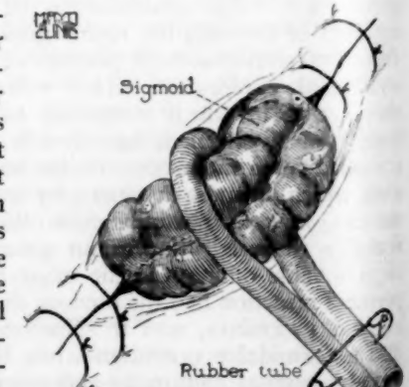


Fig. 3.—Completed colostomy; tube through opening in the skin which is pulled through the mesentery.

Involvement of the lymphatics of the group adjacent to the neoplasm should not be accepted as an unfailing indication of the inoperability, since satisfactory removal not only of this group but the group above it may often be compatible with recovery or prolonged comfortable existence. To refuse operation in all cases in which lymph nodes are found involved may exclude one third of the group, and already the statistics in all clinics indicate that the proportion of cases inoperable at the time of admission is entirely too large. Among the less fortunately circumstanced, one finds inoperability ranging as high as from 75 to 80 per cent, while in private clinics and practice 50 per cent is probably a fair estimate. At the Mayo Clinic, of the total number of cases (1,727) of malignant disease of the rectum, resection or excision was performed in 602 (34.9 per cent), and palliative procedures were carried out in 343 (19.8 per cent). Thus, in 54.7 per cent of the cases some type of operative treatment was given, although only about one third were resectable, while 782 (45.3 per cent) were found to be inoperable.

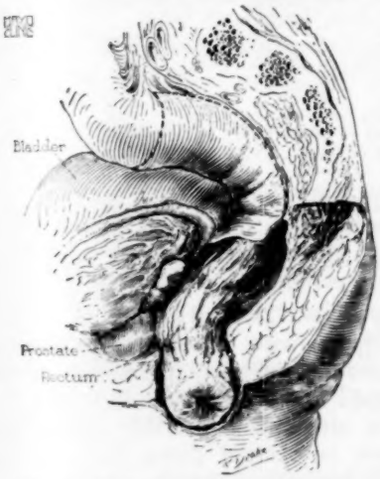


Fig. 4.—Sagittal section of pelvis showing anatomic structures. The broken line opposite the hollow of the sacrum represents the line of resection.

The question of being refused operation is a vital one to the patient suffering from carcinoma of the rectum, and I believe that the tendency to accept a greater number of advanced cases and those in which the tumor is fixed should be adopted despite the more unsatisfactory immediate results. As the scope of operability is broadened by the inclusion of these cases, the percentage of mortality increases proportionately, but, fortunately, it will be found that the percentage of patients alive at the end of five years or more will be greater if the selection of cases is not too rigid, and if a larger proportion of cases are classed as operable. As the technical difficulties are overcome, a decline in the death rate, which will necessarily result, should not be permitted to stand in the way of further extension of the operative procedure to cases that heretofore have been considered inoperable, but a maximal death rate of 10 per cent, perhaps, might be regarded as reasonable. However, not infrequently in the Mayo Clinic, in a series of consecutive cases favorable for operation, the mortality has been less than 5 per cent. The free and movable growths without lymphatic involvement may be operated on with a minimal mortality but, unfortunately, this class represents a small percentage of the whole.

The fourth consideration, the pathologic classification of the growth, has, I believe, a more important bearing on end-results than any factor in the series. Classification of malignancy according to Broders' method (grading on the basis of cell differentiation, the higher grades 4 and 3 being represented by the slighter differentiation, and grades 1 and 2 being nearer the normal) offers, perhaps, the best index of prognosis. This grading is being applied in the Mayo Clinic to the malignancy of carcinomas of the large bowel in the same manner as it has been to malignancy elsewhere, and the evidence from recent cases bears out the belief that the end-results here, as elsewhere, are vitally influenced by the amount of cell differentiation.

OPERATIONS AND MORTALITY

Several factors influence the selection of the type of operation: (1) the site and size of the growth and its freedom from metastasis; (2) the age of the patient, and (3) the anatomic type of the patient. In this series, the two-stage procedure of colostomy and resection was followed in 382 cases. A report was obtained concerning 324 patients: 185 of them have died, and 139 are alive. Of the 382 patients, thirty-six died in the hospital from various causes. During the last five years, resection has been performed in 260 cases with death in twenty (7.7 per cent). During the year 1925, the mortality was reduced to 6+ per cent. In this particular group, the men outnumbered the women exactly two to one. The type of colostomy has varied from time to time from the modified Mixter right rectus operation to the split muscle type of colostomy of Maydl, or the C. H. Mayo type. The inguinal stoma is perhaps more easily attended to than one placed more toward the median line, and the operation provides ample room for complete examination of the whole abdomen. Through it the examining hand feels the liver, determines the site of the growth, records its position at, above or below the peritoneal fold, and determines whether there are implantations on the peritoneum or in the apparently involved lymphatics in the hollow of the sacrum or in the mesentery of the sigmoid.

Fig. 5.—The incision starts over the middle of the sacrum and circles the anus. The anus is closed with a purse-string suture of silk, which is allowed to remain to be used as a tractor.

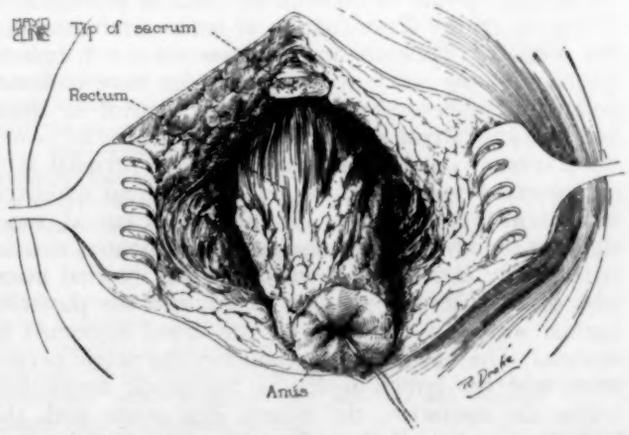


Fig. 6.—The coccyx has been disarticulated from the sacrum, the fascia propria cut across, and dissection of the hollow of the sacrum begun. The incision is extended laterally down the levator ani muscles.

The stoma is made at the highest point in the sigmoid, care being taken to shut off the space between the sigmoid and the lateral parietal peritoneum by a purse-string suture, to prevent the small bowel from slipping behind the sigmoid and producing obstruction. I think that it is unwise to put sutures in the wall of the bowel

Several times I have observed an abscess or even a small fistula result from stitching the peritoneum to the wall of the bowel. The colon is pulled down from above until the proximal arm is taut, and the skin and peritoneum are drawn under the loop through a small opening in the mesentery. The colon need not be opened for from twenty-four to seventy-two hours, and

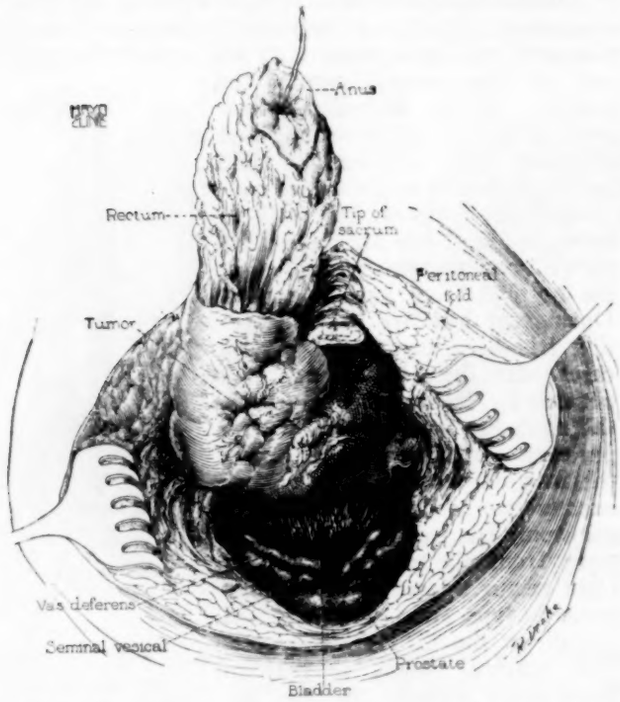


Fig. 7.—The anterior portion of the dissection has been carried down to the membranous urethra, and the prostate and seminal vesicles are shown dissected clear. The peritoneum is opened to permit further mobilization of the bowel after division of its lateral attachments.

preferably longer, and by that time peritoneal agglutination has prevented the likelihood of contamination.

The second stage of the operation consists of the radical removal of the rectum and adjacent parts with dissection of the lymphatics in the zones of spread. Miles has described three zones which he designates as the lateral, upward and downward avenues of extension. His work on the dissemination of rectal carcinoma, and the work of Jameson and Dobson on the lymphatic drainage of the pelvic rectum and colon have indicated pointedly the necessity of extensive removal of tissue and lymphatic areas *en masse*. The first zone of downward spread comprises the region of the perianal skin, ischiorectal fossa with its fat, and the external sphincter, which is always sacrificed. The second, or lateral, zones embrace the levator ani muscles, the lymphatics that lie retrorectally and in the branches of the internal iliacs, base of the bladder, prostate gland, and the posterior vaginal wall and the bases of the broad ligaments in women. The upward zone comprises the pelvic peritoneum and the lymph nodes of the pelvic mesocolon.

For the operation, the patient lies prone with the buttocks elevated; if the patient is a man, a catheter is placed in the urethra to insure against its injury. Through a straight incision over the middle of the sacrum, and extending down to the sutured-up anus, and then encircling it, to remove a wide area of perianal skin, the extent of the operative field is outlined. The coccyx may or may not be removed as seems best in the individual case, but if its removal is essential to exposure it should be disarticulated from the sacrum, care being taken to leave a flap of periosteum, rather than that the lower sacral vertebra should be cut through with a chisel. Not only is the postoperative convalescence made more free from pain by this step, but there is also less danger of subsequent osteomyelitis. Once the coccyx is removed, an incision is made through the connective tissue immediately below it and the fascia propria of the rectum cut across; the hollow of the

TABLE 1.—*Duration of Life After the Two-Stage Operation, Jan. 1, 1916, to May 15, 1924*

Patients Heard From		Patients No.	Patients Per Cent
251	Lived three years or more	119	47.41
202	Lived four years or more	77	38.11
160	Lived five years or more	53	33.12
126	Lived six years or more	32	25.39
85	Lived seven years or more	23	27.07
75	Lived eight years or more	20	26.66
44	Lived nine years or more	13	29.54
29	Lived ten years or more	7	24.13

TABLE 2.—*Duration of Life After Any Type of Resection, Jan. 1, 1916, to May 15, 1924*

Patients Heard From		Patients No.	Patients Per Cent
420	Lived three years or more	201	47.85
366	Lived four years or more	142	38.80
305	Lived five years or more	103	33.77
243	Lived six years or more	70	28.80
204	Lived seven years or more	55	26.96
165	Lived eight years or more	41	24.84
108	Lived nine years or more	23	21.29
58	Lived ten years or more	14	24.13

sacrum is then readily cleaned out. By blunt dissection, one clears out this space with little bleeding except when the terminal branch of the aorta, the middle sacral vessel, is well developed and necessitates ligature.

After the posterior attachments of the rectum are separated, the incision is carried down through the

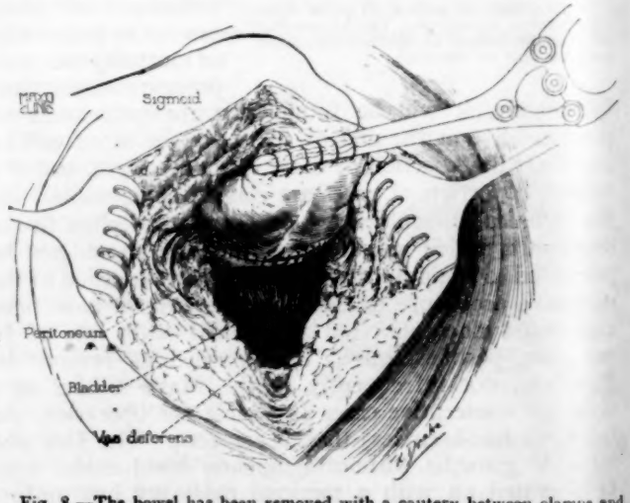


Fig. 8.—The bowel has been removed with a cautery between clamps and the peritoneum has been attached higher on the sigmoid. The line of sutures indicates its position.

levator ani muscles and the lateral ligaments of the rectum while traction is made upward on it; the division is continued until the membranous urethra and prostatic capsule come into view. If the patient is a woman, one can obtain a line of cleavage by placing a finger in the vagina, dissecting close to the posterior vaginal wall, and readily approach the peritoneal fold. By upward dissection at this point, the bowel having

been freed on all sides, the peritoneal cavity may be opened, and usually this is a necessary step because it permits more of the pelvic colon to be brought down and thus insures wider removal of lymph nodes in the zone of upward extension. The peritoneum should be sutured to the bowel from 5 to 7.5 cm. higher on the circumference of the colon than it was normally before dissection. The bowel is then divided between clamps with a cautery, and the tissues to be sacrificed are

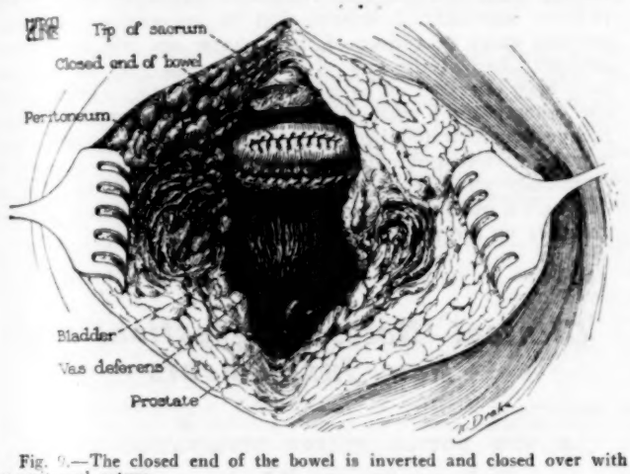


Fig. 9.—The closed end of the bowel is inverted and closed over with a peritoneal suture.

removed *en masse*. The disposition of the cut end of the bowel is important; if it is possible to invert this edge, just as one does with the duodenal stump following gastric resection, and cover it with peritoneum, the patient is saved a disagreeable mucous fistula in the posterior wound. The latter complication does not always occur, even if the bowel is sutured through and through, but the comfort insured by taking pains to avoid it is well worth while.

TABLE 3.—*Hospital Mortality*

Pathologic Condition	Cases	
	No.	Per Cent
Peritonitis	17	31.29
Pneumonia	6	11.11
Nephritis	5	9.26
Shock	5	9.26
Pulmonary embolism	3	5.55
Septicemia	3	5.55
Hemorrhage	3	5.55
Empyema	2	3.63
Endocarditis (thrombosis of vena cava 1)	2	3.63
Marked arteriosclerosis	1	1.85
Myocardial degeneration	1	1.85
Cerebral hemorrhage	1	1.85
Diabetes mellitus	1	1.85
Pelvic abscess	1	1.85
Gangrenous pelvic cellulitis (hemolytic streptococci)	1	1.85
Abscesses of the kidney	1	1.85
Inanition	1	1.85

The second part of the operation can usually be completed under transsacral anesthesia, and this is unquestionably a distinct advantage. By parasacral infiltration of 1 per cent procaine hydrochloride, complete anesthesia of the parts is usually insured, and, except when traction is made on the bowel after the peritoneal cavity is opened, there is rarely necessity for gas; if this is essential, the general anesthesia is reduced to a minimum. Postoperative convalescence, I believe, is much smoother and more uneventful now than during the period when general anesthesia was the rule, and it has unquestionably been a valuable factor in the reduction of complications and mortality.

Of the 139 patients (43 per cent of those heard from after the two-stage operation), who are well at present, table 1 shows the number alive more than three years, up to ten years. Of the whole series of 602 patients, table 2 shows the number who lived more than three years, up to ten years, following any type of resection.

The hospital mortality was counted against the operation of every patient dying in the hospital, regardless of the length of time following the operation or the complication which influenced it. Table 3 shows the type of hospital mortality.

This gradual reduction of mortality and the more satisfactory end-results unquestionably reflect several changes in dealing with malignant disease of the rectum: (1) cooperative management of these cases in the preoperative stages; (2) better selection of cases for the various types of operation, and (3) the choice of a graded abdominoperineal operation susceptible of modifications in the majority of cases.

ABSTRACT OF DISCUSSION

DR. DANIEL F. JONES, Boston: The one thing which has done more to improve the operation for cancer of the rectum than anything else is the adoption of a colostomy in practically every case. It gives a better opportunity for a permanent cure, the mortality will be lower and the patient will have more comfort while he does live than by any method which preserves the sphincter. I agree with Dr. Rankin that we should not attempt to cure all cases by one operation, and that the best operation for the average surgeon is colostomy and posterior excision of the rectum. On the other hand, if we are to operate in the largest possible number of these cases, as I believe that we should, we ought to have at least five operations to choose from, and should then try to select the best operation for the particular patient and the one which we are capable of performing. The ideal operation is, I believe, the abdominoperineal one stage operation. If the patient cannot stand this, the next choice would be the abdominoperineal operation done in two stages. If the growth is low, a less severe operation would be a colostomy and perineal excision. When the growth is above the peritoneum and the patient is a poor risk, we should use the abdominal route and clamp well below the growth. The growth and sigmoid are then brought out through the abdominal wound, a colostomy is made, and the growth and the lower sigmoid with the mesentery are removed. In a few cases, it is proper to preserve the sphincter; then a combined abdominoperineal operation in one stage can be done and the sigmoid brought down through the sphincter. While Lockhart-Mummery reports a mortality of only 8.5 per cent, three year cures, in 55.5 per cent of the cases in which colostomy and posterior excision were performed, Gabriel reports for St. Mark's Hospital, for the same operation and for a somewhat longer period of time, a mortality of 15.4 per cent, and a record of 28.5 per cent of patients living three or more years, which is hardly better than the results of the posterior operations that were reported up to 1912. While the mortality is lower in this operation than in the abdominoperineal (23 per cent), it can be performed in a much smaller percentage of cases. The percentage of patients living at the end of three years out of the total number seen will, therefore, be much smaller when by the

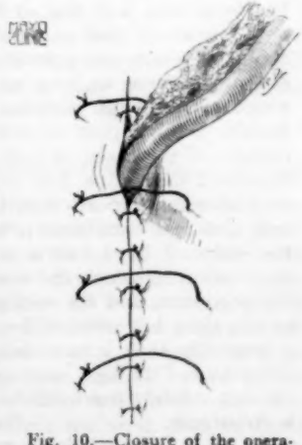


Fig. 10.—Closure of the operative field with drainage.

abdominoperineal method with its higher mortality has been used, and much lower than if the five operations mentioned are used. If the general practitioner could only be taught that the early symptoms of cancer of the rectum are changes in the bowel habit or sensation and bleeding from the rectum, and that if there is any suggestion of cancer of the rectum, a positive diagnosis can be made by digital or proctoscopic examination, our results would improve at once. A roentgen-ray examination should not be made until after cancer of the rectum has been ruled out.

DR. DAMON B. PFEIFFER, Philadelphia: It is very gratifying to note the present interest in carcinoma of the rectum. It is a field most amenable to surgery but one which has been relatively neglected. There has been a false dread of colostomy largely inspired by the old filthy, uncontrolled, posterior colostomy, and by its use as a purely palliative procedure. If the best results are to be achieved, it must be along the well tried and proved principles of surgery of carcinoma, namely, the widest possible ablation of the growth, together with the zones of regional lymphatic spread. The rectum, with reference to its intramural lymphatics, is divided into two segments, an upper and a lower, the boundary being the lowermost valve of Houston. Lymphatic injections below that point leave the rectum at the level of the valve, and injections above the valve never pass downward in the wall of the rectum below that point. Therefore, the ideal operation is the combined abdominoperineal procedure in which the upper zone of danger is liberated primarily through the abdomen and made accessible to removal from below. The requirements for this operation are a patient in good general condition and a skilled surgeon who has had experience with the operation. I believe that on the sound grounds of analogy with the results of all cancer surgery and the developing statistics of actual experience, this operation will yield the greatest percentage of permanent cures. With due emphasis on this phase of the problem, I join in recommending for general use and for less satisfactory risks the operation described by Dr. Rankin. It can be done in cancer of the lower ampulla with the confident expectation of a low mortality and a gratifying proportion of cures. It deserves to be popularized as a very practical means of meeting a general need.

DR. C. T. SOUTHER, Cincinnati: I want to call attention to one feature associated with colostomy in all forms of carcinoma of the rectum, namely, that if we will look over our records we will find that there were practically no deaths. Most of these patients in whom simple colectomy has been done will live at least two years. I have not done colostomies in any patients, except those in the extreme stages in whom the operation was done for obstruction, who did not survive as long as two years following the colostomy, even though nothing was done subsequently. In the female, I think that we are justified in a considerable percentage of the cases, in fact, in practically all cases in which basement membrane has not been broken through, in doing an abdominoperineal operation. This operation is more difficult and less satisfactory, in my experience, when done on the male. I have had a number of cases of carcinoma of the rectum in which the entire mass was taken out through the perineum, and the rectum pulled down and stitched only to the skin, but without any effort being made to reproduce a muscular anus in any sense. One patient, who now weighs 250 pounds (113 Kg.), was operated on nearly three years ago. He has a fairly comfortable control without ever having had a colostomy.

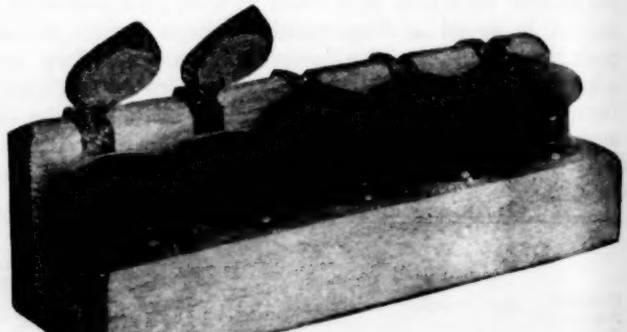
DR. FRED W. RANKIN, Rochester, Minn.: I agree with Dr. Jones that the ideal operation for cancer of the rectum in selected cases is a combined abdominoperineal type of procedure. This operation answers the requirements in every way in that it makes for a wider removal of lymphatic tissue, as well as the malignant growth, but that it is applicable in all cases is questionable because of its high primary mortality rate. The vast majority of patients with cancer of the rectum, as we see them, are poor risks from the time they come under our observation. Many of them are readily classified as very poor risks because of obstruction which takes place early. Obstruction is the most vital factor in dealing with surgery of the large bowel in cases in which resection is indicated, and a graded procedure which permits of relief of obstruction with a subsequent radical removal of the growth and contiguous tissues certainly will be advantageous in the majority of cases. That no one procedure is applicable in all cases is quite obvious, and any surgeon dealing with cancer of the rectum must have at his command several types of operation which may be applied in the proper, early selected group of cases. Taking into consideration the risks as the patients are admitted, and in view of the satisfactory three and five year results in this series with a low primary mortality, I believe that in an average series of average cases of cancer of the rectum, one will have some patients alive at the end of a five or ten year period who have been operated on by a graded procedure. There is just one other point I want to make about this operation, which I have demonstrated here, and that is that the second stage may be carried out entirely under transsacral anesthesia in practically all cases. Rarely is it necessary to supplement this with a little gas. The latter point, I think, has a decided influence on the reduction of mortality.

Clinical Notes, Suggestions and New Instruments

A NEW BOTTLE HOLDER ELIMINATING CORKS

W. BARCLAY STEPHENS, M.D., ALAMEDA, CALIF.

The device here pictured and described is the materialization of an idea that had been "floating" around in my mind for some time. So well has it filled the need for which it was created that I feel impelled to pass the idea on to my fellows.



Bottle holder that eliminates corks.

It serves both as a holder and as corks for the bottles. A material saving of time and temper is effected by reason of the fact that the bottles are always in their same relative position and therefore quickly located, and with a fillip of the thumb or finger instantly opened and as easily closed. Thus is avoided the annoyance of having to look for the needed bottle, the use of both hands to remove the cork, which often sticks, and the overturning of the bottles with the consequent staining of the stand.

For six months it has been in daily use on my ear, nose and throat stands. It has proved a great conserver of time and temper and there has been less staining of my fingers with silver nitrate and other solutions.

The bottom is covered with sheet lead to give stability, both by its weight and by its clinging quality. The cover taking the place of the cork has on its under surface a soft rubber pad fitting over the top of the bottle. A spring impinging on the rear end of the cover keeps it snugly against the top of the bottle when closed and upright when the cover is lifted. The cover is dust proof but not entirely air tight. Ordinary aqueous solutions keep well for a long time, but the cover is hardly tight enough for alcoholic solutions.

2241 Central Avenue.

ELECTROCARDIOGRAPHIC REPORT BLANK*

WILLIAM D. REID, M.D., AND FLORENCE L. KENWAY, M.S., BOSTON

Reports of electrocardiograms are often made to physicians who have not yet had occasion to become familiar with their interpretation, and it was with the hope of making the reports more intelligible, and so more helpful, that the accompanying report blank was designed. The information contained in the fine print on the blank is, of course, a compromise between the statement of the fundamental data and the need of brevity; in spite of limitations, it does obviate considerable verbiage in writing the reports.

The space immediately below the horizontal lines is for further description of the technical data, which vary in different electrocardiograms. We would emphasize the importance of making free use of the larger space below the printed word "Remarks." This is the place for the interpreter to state the significance of the technical findings given above, and is, of course, best done if the electrocardiographer is also familiar with the clinical aspects of the patient. We are impressed with the need for this by hearing the adverse criticism of physicians who receive only a report of the technical observations which they frankly state they do not understand.

If electrocardiograms are to achieve their full value, it is desirable that no pains be spared to make their reports as intelligible as possible.

EVANS MEMORIAL

REPORT OF ELECTROCARDIOGRAM

Notes. The P wave = Auricular contraction. The Ventricular contraction is represented by two components, the initial or Q-R-S complex, and the T wave. The P-R interval indicates the time of conduction between the auricles and ventricles. Both the P and T waves should be upright in lead II. An angle of the electrical axis higher than 90° = right axis deviation; below 0° = left axis deviation. Left or right axis deviation usually indicates relative increase in weight of one ventricle as compared to that of the other, but lesser degrees of it may be due to changes in the position of the heart.

Abscissae (vertical rulings) mark off periods of time; the fine indicate 0.04 second and the coarse 0.2 second. Each ordinate (horizontal ruling) indicates an electrical force of 0.1 millivolt. The tracing is recorded progressively from left to right.

Name _____ Age _____ Date _____

Service _____ Ward _____

	Normal
Rhythm	
Rate: Auricular Ventricular	
P-R	0.12—0.21 second
Q-R-S	Not over 0.10 sec.
P_2	Not over 0.3 mvt. and 0.1 sec.
Axis	Angle = 0°—90°

Printing at top of electrocardiographic report blank. The full sheet measures 8½ by 11 inches. There is space for technical data, remarks, and signature of the physician.

A MODIFICATION IN THE ADMINISTRATION OF TETRAIODOPHENOLPHTHALEIN BY THE ORAL ROUTE FOR CHOLECYSTOGRAPHY

VICTOR KNAPP, M.D., NEW YORK

It has been the experience of every one who has employed the oral route in giving the dye for cholecystography to find undissolved capsules in the colon, when either the keratin-coated or phenyl salicylate-coated preparation is used. To lessen the frequency with which this occurs, I have been using the plain gelatin capsule, uncoated. As the capsules are needed, they are filled with the dye.

The number of patients who have experienced symptoms of gastric irritation is no greater with the uncoated capsule than with the coated one. The results have been better, because nondigested capsules are rarely found, so that a maximum amount of dye is available for absorption. In this way, the information obtained from this procedure is perhaps more certain, and brings the oral route somewhat nearer to the perfection that has been achieved when the dye is injected intravenously.

Eight 5 grain capsules are used, as an average, for each case.

It is hoped that the uncoated capsule may be tried by a number of workers in this field, so that its efficacy may be properly evaluated.

2021 Grand Concourse.

THE PREPARATION OF PETROLATUM DRAINAGE GAUZE

WILTON H. ROBINSON, M.D., PITTSBURGH

Petrolatum gauze as a drainage material is less irritating than other gauze. Secretions do not clot so readily, and it does not stick to the edges of the wound, but it should be prepared in such a manner that plenty of capillary space is available for drainage. The following method of preparation has been found to give a satisfactory product:

Take a large test tube, pack cotton in the bottom to the height of 1 inch (2.5 cm.), pack dry drainage gauze over this to within 2 inches (5 cm.) of the top, place on top of this a small dab of petrolatum, place cotton stopper in mouth of the tube, set upright in the autoclave and sterilize.

The heated petrolatum, in making its way to the bottom of the tube, impregnates the threads of gauze but does not fill the interstices between the threads. Any excess petrolatum is absorbed by the cotton at the bottom of the tube.

5083 Jenkins Arcade.

Tribute to Departed Friends.—I sense, with special force, the helpfulness of a most modest, truth-inviting man. Each day he leads me on, through impress of the life he lived. Despite a generous group of scientific contributions, to me he left much more in demonstration of a humble spirit, in his most patient care to risk no life in needless surgery, in precept that to cheer with helpful word and kindly smile is of the utmost value. We need these lessons in the art of kindliness; throughout our busy lives we should all nurse our sympathy for those who suffer; we need, also, to learn to be more generous to our young colleagues, just as this man was, in countless ways, without a vestige of that common fear that some day they might grow to be competitors. This word of retrospect stirs up fond memories of others gone, and from their lives we learn a better regulation and adjustment of our own. We learn the fruitlessness of uncurbed personal ambition, of false desire for unearned praise and glory, of the too great price which money sometimes costs, of heartaches caused by selfishness where kindness should be found.—Curtis, A. H.: Presidential address before American Gynecological Society, *Am. J. Obst. & Gynec.*, October, 1927.

* From the Evans Memorial.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Five dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, DECEMBER 3, 1927

SPECULATIONS ABOUT UREMIA

Certain types of disorder induced by renal insufficiency are usually designated as uremia. It is unfortunate that this name has received such widespread, continued acceptance; for it inevitably brings to mind a feature of the malady that has thereby attained undue prominence and probably retarded the discovery of the fundamental etiology of the more important symptoms. The knowledge that urea accumulates in the blood when the excretory function of the kidneys is suppressed is more than a century old.[1] According to Foster,[2] the classic discovery of Prévost and Dumas led Bright's associates, Prout and Babbington, to test the blood of patients having chronic interstitial nephritis. An increase of urea was detected—hence the name uremia. The additional, prejudicial, feature was that Bright believed urea to be a very toxic substance and the cause of some of the severe nervous disorders noted in the later stages of certain cases of albuminuria.

The symptoms attending severe impairment of renal function may be varied; they have been grouped as toxic, psychic and neuromotor in character. Hypertension may occur, followed by marked fall in arterial pressure in the late stages of uremia; marked muscular irritability may arise along with convulsions and vomiting, these manifestations being followed by coma; watery polyuria may be succeeded by oliguria with albumin, casts, and high specific gravity of the urine actually secreted; there may be extensive edemas, notably of the central nervous system. As the kidneys have the exclusive function of eliminating the nitrogenous catabolites and most of the inorganic waste from the body, their failure as excretory organs inevitably leads to some accumulation of these products in the blood and tissues. What was more natural, then, than to assume that the retained urinary components represent the toxic substances responsible for the clinical phenomena of uremia? And urea, being the foremost in quantity, received a conspicuous place in the charge of etiologic responsibility.

Actual experiment has shown, however, that urea is a relatively nontoxic substance; furthermore, the other well known nitrogenous urinary components—uric acid, creatinine, hippuric acid and pigments—exert such slight toxicity that they likewise cannot successfully be held to explain the most characteristic symptoms of uremia. Animals that have been subjected to double nephrectomy may remain active for several days. According to Andrews,[3] they die rather suddenly, apparently from inanition, without symptoms such as are ordinarily manifested in the terminal stages of nephritis. Clinical and histologic studies of such animals reveal none of the characteristic changes of uremia except the high nonprotein nitrogen. What the clinician describes as uremia can therefore scarcely be due to the usual urinary products thus unduly retained in the body; in other words, the renal obstruction per se is not sufficient to provoke the familiar trains of symptoms. There is clinical and experimental confirmation of the further conclusion that something more than simple suppression of urine is required to bring about edema. Failure of urinary secretion can, indeed, occur without histologic changes in the kidneys. Anuria is not to be identified with uremia.

Andrews has accordingly sought the explanation of the genesis of the uremic syndrome in other factors, and believes that it can be reproduced in its entirety experimentally by disturbance of the acid-base equilibrium and the mineral salt balance. If animals in which suppression of urine is brought about by either nephrectomy or acidosis are injected with hypertonic salt solution in amounts such that the chloride content of the blood is comparable to that in uremia, they pass into a condition closely resembling uremia. Every manifestation of uremia seen in the human being is reproduced. This is true of the histologic and chemical factors as well. High blood pressure, convulsions followed by coma, "wet brain" and suppression of urine are cardinal points. Both the chlorides and water rapidly make their way from the blood into the tissues. The brain and liver have the highest chloride contents, and are the organs chiefly involved. There is marked degeneration in the liver, which is shown to be due to an increased sodium-calcium ratio which renders the liver cells permeable.

Acidosis is a well known precursor or attendant of the uremic condition. Chlorides are also likely to accumulate in considerable proportions in the absence of adequate renal excretory facilities. Two factors may thus be supplied that combine to initiate edema and anasarca. The permeability of cells becomes greatly altered. The liver, for example, may then liberate not only stored salts in unusual proportions

1. Cowgill, G. R.: Chemistry of the Blood One Hundred Years Ago, Scient. Month., February, 1922, p. 161.
2. Foster, N. B.: Cecil's Textbook of Medicine, Philadelphia, W. B. Saunders Company, 1927.
3. Andrews, Edmund: Experimental Uremia, Arch. Int. Med. **40**: 548 (Oct.) 1927.

but also products representing incomplete stages of protein breakdown. In fact, according to Andrews one seems justified in assuming that these degenerative changes in the liver are the fundamental source of the uremic toxins, that albuminous substances are allowed to escape into the blood on account of the destruction of the cell membranes, and that this is the source of the albumin in the urine in nephritis. For the present it matters not so much whether these explanations are entirely tenable as that new approaches should be opened to the solution of the hitherto baffling problems of uremia.

THE PANCREAS AND ITS HORMONE, INSULIN

The brilliant achievement of Banting, Best, Macleod and Collip in the preparation of insulin made an instantaneous appeal as a beneficent help to mankind. The investigation not only threw light into dark places of scientific thought but also restored life to the dying. To many persons, such accomplishments are regarded merely as the flashes of genius—strokes out of a clear sky. Those who are familiar with the ways of research recognize better, however, that great and small discoveries alike usually arise from adequate preparation. Scientific achievement is not created de novo; it is reared on the foundations that have been securely laid in past endeavor, itself often exceedingly prolonged and painstaking.

What this means in the case of the pancreatic hormone has been pointed out by Abel,[1] the distinguished chemical worker who has recently succeeded in preparing insulin for the first time in crystalline condition. He has designated the recognition of this product as the last of "four important milestones in the history of carbohydrate metabolism," the first three of which were indispensable for the signal achievement of the Toronto group. First came the discovery of glycogen by the French physiologist Claude Bernard in 1857, and the consequent understanding of the possibilities that this "animal starch" represents in the mobilization of carbohydrates in the body. Bernard's work on the hepatic storage of glycogen was carried out with great diligence and perfection. His biographer, Sir Michael Foster, remarked that if we put aside the discovery of the share taken by the pancreas in determining the part played by sugar in the animal body, all that has since been added by others to Bernard's own results amounts, compared with them, to something relatively small. It has rarely fallen to the lot of any one who made the beginning of such a wholly new line of research to carry it forward so far toward completion with his own hands as Bernard did the glycogenic function of the liver. So also, in many other details, says Foster, the kernel of what we are discussing today may be found in some sentence or other of Bernard's. It has been the fate of many other men in many matters merely to lay a foundation on which other men have built. He, in the matter of glycogen, not only laid the very first stone but left a house so nearly finished that other men have been able to add but little.

As the second important development in this field Abel designates Langerhans' discovery of the islet tissue of the pancreas in 1867; for this was subsequently demonstrated to be the seat of the production of the pancreatic hormone. In 1889 came the brilliant demonstration of von Mering and Minkowski that complete removal of the pancreas from dogs is followed by a disease state which is practically in all respects like that seen in human diabetes mellitus. An experimental method was thus made available for the study of the metabolism and therapy of diabetes. It was no longer necessary to rely solely on the clinic with the vagaries of unfortunate human patients. Pancreatic diabetes could be produced at will; its characteristics were then carefully elucidated. Thus was provided, in the words of Abel, the indispensable foundation for a fourth step —the preparation of an effective and stable extract that would unfailingly, or with rare exceptions, restore completely to health persons, old and young, sufferers from and often the early victims of that heretofore unconquerable malady diabetes mellitus. In the progress of scientific endeavor it is easy to forget, but helpful to remember, the past.

1. Abel, J. J.: Chemistry in Relation to Biology and Medicine, with Special Reference to Insulin and Other Hormones, Science **66**: 337 (Oct. 14) 1927.

METHYL ALCOHOL, A CONSTITUENT OF TOBACCO SMOKE

The use of tobacco has been greatly extended in this country in recent years. Smoking has not only maintained its popularity among men but also is attaining greater and greater vogue among the women The per capita consumption of the "weed" in the United States is well above six pounds per annum; in view of the fact that smoking is not indulged in by many people, the use of tobacco by its devotees must be expressed by far larger figures. In terms of cigars and cigarets, they involve billions every year. These facts alone warrant the securing of adequate information with regard to many aspects of the problem of tobacco smoking. Heretofore interest has been centered primarily on nicotine, a potent alkaloid present in varying quantities in the tobacco and transferred to a considerable degree—probably 30 per cent—to the smoke produced by the combustion of the leaf. Of course, the absolute amounts of nicotine involved are small. The cost and smoker's preference of tobacco are not a good index of its nicotine content. It has been estimated, however, that a cigaret smoker who puffed away steadily for an hour might absorb as much as 36 mg. of nicotine if he inhaled and 27 mg. if he merely puffed. These are quantities that deserve consideration in relation to possible malaise.

It has been demonstrated that other substances toxic in nature may appear in tobacco smoke. Among them is carbon monoxide, which may make up as much as 25 parts per 10,000 of the air.[1] Whether the concentration of this admittedly noxious gas ever reaches a point in smoking where it becomes a physiologic menace is not readily answered. Thousands of persons will testify to the discomfort they have experienced in an atmosphere laden with tobacco smoke. Few will venture, however, to fix the blame on any single contaminant of the inhaled air.

A new factor has been introduced by the demonstrations of Neuberg [2] and his co-workers at the Kaiser Wilhelm Institute for Biochemistry in Berlin-Dahlem that tobacco is a potential source of methyl alcohol, popularly known as wood alcohol. The latter is not present preformed in the leaf either before or after "curing" but is derived from the plant pectin, which is a methyl ester of a complex acid of carbohydrate origin.[3] Pectins may yield as much as 11 per cent of methyl alcohol. Of course no such quantities are derivable directly from tobacco, which includes many constituents besides pectins. Nevertheless methyl alcohol is detectable in measurable amounts in tobacco smoke, although it might have been assumed that the readily oxidized compound would be destroyed completely in the combustion of the leaf. Under the conditions of actual tobacco smoking as practiced by man with cigars and cigarets, Neuberg and Ottenstein found that not more than one tenth of the methyl alcohol entering the body with the smoke was exhaled again with the expired air. Most of it seemed to remain dissolved in the fluids, notably the saliva moistening the buccal and respiratory passages. Presumably the popular narghile or oriental smoking pipes containing a water chamber remove much ot the methyl alcohol.

The possible physiologic significance of the new discovery (which has already been heralded in the newsprint under captions permitting the conclusion that ordinary, ethyl, alcohol is involved) hinges on the quantities of methyl alcohol involved. According to the German calculations, a smoker who consumes ten cigars of average size daily burns up about 70 Gm. of tobacco and inhales about 42 mg. of methyl alcohol. Cigaret tobacco gives a larger yield, so that the smoking of twenty cigarets containing a total of only 20 Gm. of tobacco will likewise lead to the inhalation of 40 mg. of the alcohol. These are not toxic doses. Whether they can produce synergistic effects for harm, or, in view of the resistance of methyl alcohol to oxidation in the body, they can exert cumulative effects remains to be learned. As Neuberg has further summarized the problem, it must be remembered that vaporized methylated spirit may act quite differently in combination with other tobacco poisons than it would alone.

1. What We Get When We Smoke, editorial, J. A. M. A. **80**: 629 (March 3) 1923.

2. Neuberg, C., and Kobel, Maria: Ueber die Vorgänge im frischen und getrockneten Tabakblatt vor und während der Fermentation, Biochem. Ztschr. **179**: 459 (Dec.) 1926. Neuberg, C., and Ottenstein, Berta: Uebertritt von Methylalkohol in den Tabakrauch, ibid. **188**: 217 (Sept.) 1927. Neuberg, C., and Kobel, Maria: Naturwissenschaften **14**: 1182, 1926.

3. Von Fellenberg, T.: Biochem. Ztschr. **85**: 118, 1918. Ehrlich, F., and von Sommerfeld, R.: Ibid. **168**: 263, 1926. Ehrlich, F., and Schubert, F.: Ibid. **169**: 13, 1926.

Current Comment

THE CRYSTALLIZATION OF TUBERCULIN

About a year and a half ago the announcement was made that Dr. Florence B. Seibert [1] of the Sprague Memorial Institute at Chicago had isolated from cultures of *Bacillus tuberculosis* a crystalline protein that gave indication of being the "active principle" of tuberculin responsible for the familiar skin reaction with tuberculous subjects. This has acquired importance because it occurs in man only after tubercle bacilli have gained a foothold in the body. A positive reaction is therefore an index of tuberculous infection. It had long been suspected that protein was involved in the production of the well known cutaneous and intradermic manifestations evoked by tuberculin. The latter product, as it has heretofore been available, is undoubtedly a mixture of substances; in any event it has carried none of the earmarks of a pure chemical compound. Consequently the implication of protein as the causative agent in the characteristic diagnostic reaction could be regarded at best as a probability. The fact that many biologic reactions made familiar by the modern study of immunology can be brought about by surprisingly small quantities of reactive substances naturally raised the oft recurring question whether the protein per se, or some associated, contaminating, compound is the active substance. Proteins are notably difficult to secure in conditions approaching purity. The successful crystallization of a component of crude tuberculin with retention of its characteristic diagnostic properties was a long step toward the desired demonstration of the nature of the active principle. At a recent meeting of the National Academy of Sciences in Urbana, Ill., Seibert [2] fortified the evidence by announcing success in recrystallizing the tuberculin protein as many as fourteen times. After this extensive refinement the crystallized product not only retained its biologic reactivity but rather showed a far greater potency than that exhibited by the original fraction of tuberculin from which it was made. According to Seibert the protein in tuberculin in its most natural and unchanged form is crystallizable into needles and burrs, but it is an extremely labile protein readily becoming less soluble in distilled water and then not crystallizable. This less soluble protein is still biologically active, but loses all or most of its activity with a further change to complete insolubility in distilled water. This denaturization and instability of the protein in water explain the small yield of crystals obtained and the great losses in activity during

1. Seibert, Florence B.: The Isolation of a Crystalline Protein with Tuberculin Activity, Science **63**: 619 (June 18) 1926. Long, E. R., and Seibert, F. B.: The Chemical Composition of the Active Principle of Tuberculin: I-VII, Am. Rev. Tuberc. **13**: 393, 1926; Crystalline Tuberculin, editorial, J. A. M. A. **87**: 417 (Aug. 7) 1926.

2. Seibert, Florence B.: The Isolation of a Crystalline Protein with Tuberculin Activity, Science **66**: 433 (Nov. 4) 1927.

isolation of the protein, and emphasize the importance of using the quickest and least drastic methods possible when the highest yields of most potent material are desired. In the case of tuberculin, therefore, there seems to be sufficient evidence to warrant the conclusion that the active principle is protein. It is a specifically toxic bacillary product and a protein obtainable in crystalline form, thus passing the first criterion of purity from a chemical standpoint. In a recent address, Mendel [3] ventured to prophesy a growing employment of "large scale" operations in departments of chemical research that have scarcely outgrown the exclusive use of the test tube and the beaker for their major reactions. One can herald with a feeling of real assurance, he states, many future successes arising from the application of large scale chemical procedures. The success of Seibert, who has been enabled to work with many gallons of bacterial culture liquid, represents a substantiation of the expectation.

NASAL DEFORMITIES FOLLOWING OPERATIONS

The transfer from the medieval to the modern in surgery has involved two prominent factors. They were, as Lee [4] has pointed out, the pain of the operation and the uncertainty of its outcome, owing to the almost inevitable subsequent septic conditions. These two features have now been almost wholly eliminated by the discovery of anesthesia and asepsis, the two most important general surgical advances of our time. If no further advances had been made, surgery might remain merely "an art of skilful cutting and sewing"; but it has risen to a far higher level. The surgery of today takes cognizance of the desirability of protecting tissues from unnecessary physiologic as well as operative insults; thus it aims not only to repair injuries and to extirpate detrimental or malignant structures in the body, but also to conserve the utmost well being of the uninvolved parts. Nor is this all. There is an artistic aspect of surgery expressed in the effort to maintain the esthetic features of the organism. Plastic surgery receives much of its inspiration from this consideration. The recognition of the importance of the conservative outlook has prompted Maliniak [5] to point out the not uncommon production of unnecessary nasal deformities in consequence of the increasingly common submucous resection of the nasal septum. It is next to tonsillectomy in frequency; and the operation is likely to become more frequent with the rapid increase of specialization in practice. According to Maliniak, the operation for deflected septum is often wrongly considered to be indicated. This fact, he believes, should be all the more emphasized since, besides the ordinary risks occurring in any surgical intervention, the complications that may follow are particularly serious because of the especial possibility of nasal disfigurement.

3. Mendel, L. B.: Some Tendencies in the Promotion of Chemical Research, Science **65**: 559 (June 10) 1927.
4. Lee, F. S.: Scientific Features of Modern Medicine, New York, Columbia University Press, 1911.
5. Maliniak, J. W.: Nasal Deformities, Arch. Otolaryng. **6**: 320 (Oct.) 1927.

Association News

THE MINNEAPOLIS SESSION

Scientific Exhibit

The Scientific Exhibit for the Minneapolis Session, June 11-15, 1928, will be located in the Minneapolis Auditorium; in this building will also be housed the Registration Bureau, Technical Exhibits, and some of the sections of the Scientific Assembly.

The Committee on Scientific Exhibit emphasizes that exhibits should be presented in a way that will stress their scientific value. This may be done by carefully worded explanatory placards, but particularly by personal demonstration. (The committee requires that all booths shall be in charge of a competent demonstrator.) Also, it should be remembered that the general attractiveness of the exhibit is essential; the committee will do its part by having the booths decorated appropriately and will furnish uniform signs giving the name of the exhibitor and the title of the exhibit. The total amount of space available in Minneapolis is only slightly larger than that available at the 1927 session in Washington. From the interest already manifested in the next Scientific Exhibit, it is evident that large blocks of space cannot be assigned to individual exhibitors.

Application blanks for the Scientific Exhibit may be obtained by sending requests for them to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago.

Applications must be received before March 20, in order that the amount of space available may be apportioned to the best advantage of all concerned. The committee will make no assignments before April 15.

MOTION PICTURE THEATER OMITTED

As was reported in the Minutes of the Board of Trustees last September, the Motion Picture Theater will be omitted as a feature of the Minneapolis Session.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Personal.—Dr. Frank Vinsonhaler, dean of the University of Arkansas School of Medicine, has been elected president of the Arkansas Reserve Officers' Association.——Dr. Francis M. Smith has resigned as health officer of Pine Bluff and Jefferson County to accept a similar position in Vicksburg, Miss.

IDAHO

Notes from State Medical Meeting.—At the recent meeting of the Idaho State Medical Association at Twin Falls, a resolution was unanimously adopted recommending the enactment of a basic science law in Idaho. It was also voted to assess the members of the association annually $60 per capita; to appropriate the sum of $8,000 to conduct the growing business of the association each year, and, in the event that the assessments were not equal to the amount necessary to carry on the business, to levy a further assessment for the purpose of raising sufficient funds. The state association also heartily endorsed and pledged its full support to the movement on the part of various lay organizations sponsoring the reclamation, care and treatment of crippled children.

ILLINOIS

Smallpox at Aurora.—More than forty cases of smallpox had been reported in Aurora, November 23, mostly among school children and others in the homes of pupils. Following a warning issued by the local health department, several thousand persons were reported to have been vaccinated.

Personal.—Dr. Frederick H. Gunn, East St. Louis, was elected president of the Southern Illinois Medical Association at the Murphysboro meeting in the first week of November The 1928 annual meeting will be in Mount Vernon.—— Dr. Samuel L. Poplack, New York, has assumed charge of the roentgen-ray work of St. Elizabeth's Hospital, Danville.

Younger Folk Are Getting Venereal Disease.—The state health commissioner announced, November 22, that 29,404 new cases of venereal disease had been reported during 1927, an increase of 1,717 over the number of cases for the corresponding period last year, although notification appears even less complete than it was two or three years ago. An analysis of the report shows that the greatest number of infections have taken place in the age group 19 to 21, whereas a few years ago the maximum infection rate was among the age group 23 to 25. The encouraging feature of the situation, the commissioner states, is that more of those infected are receiving proper treatment than formerly; 80,500 persons were treated during the last fiscal year at twenty-three clinics in Illinois operated for indigent persons. The commissioner, Dr. Isaac D. Rawlings, adds that to remedy the situation more home education and less unrestrained self-expression of children are needed.

Society News.—At the November 10 meeting of the Illinois Trudeau Society, Jacksonville, physicians were present from throughout the state; Dr. Robert H. Hayes, Chicago, was elected president for the coming year; Dr. William Newcomb, Jacksonville, vice president, and Dr. Walter C. Martini, Springfield, secretary-treasurer.——The scientific service committee of the Illinois State Medical Society has scheduled the following speakers for meetings: Rock Island County Medical Society, November 8, Dr. Jacob Meyer, Chicago, "Nephritis"; Bureau County, November 10, Dr. Henry B. Thomas, Chicago, "Fractures," and Dr. Floyd L. Heinemeyer, Rockford, "Toxemias of Pregnancy"; Union County, November 10, Dr. Don W. Deal, Springfield, "The Acute Abdomen; Differential Diagnosis and Treatment," and Dr. Albert E. Rives, East St. Louis, "Management of Breach Presentation in Hemorrhage"; Whiteside County, November 17, Dr. Aaron Arkin, Chicago, "Differential Diagnoses of Pulmonary Lesions," and Dr. Joseph L. Sherrick, Monmouth, "Cardiac Arrhythmias"; Rock Island County Medical Society, December 13, Dr. Norval H. Pierce, Chicago, "Indications for Surgical Intervention in Acute Mastoiditis."

Chicago

Dr. Kegel Succeeds Dr. Bundesen as Health Commissioner.—Mayor William Hale Thompson has appointed Dr. Arnold H. Kegel health commissioner of the city of Chicago to succeed Dr. Herman N. Bundesen, who has held that position for more than five years. Dr. Kegel graduated at Loyola University School of Medicine in 1916 and from 1917 to 1921 was at the Mayo Foundation and Clinic, Rochester, Minn. He is now practicing surgery in Chicago as a member of the Storer, Kegel and Brock Clinic. He is chairman of the medical section of Mayor Thompson's Flood Control Conference.

Cancer Clinic at Oak Park.—Dr. George W. Crile, Cleveland, will be the guest of honor at a cancer prevention meeting for the public sponsored by the Oak Park Physicians' Club, Oak Park, at the West Suburban Hospital and Oak Park High School Auditorium, December 8. There will be clinics at the hospital in the morning. Dr. Crile will address the Oak Park business and club men at a luncheon, and a women's meeting at the high school in the afternoon. Following the dinner at 6 o'clock, there will be a scientific meeting to which all physicians are cordially invited. Physicians are also requested to bring to these clinics cases of cancer and suspects. Inquiries can be made of the secretary of the Oak Park Physicians' Club, Dr. Arthur E. Wanderer.

Society News.—Dr. Frank Lahey, Boston, will address the Chicago Medical Society, December 7, on "Diagnosis and Management of Toxic Goiter."——William T. Bovie, Ph.D., professor of biophysics, Northwestern University Medical School, will address the Chicago Laryngological and Otological Society, December 5, at the Stevens Restaurant, 16 North Wabash Avenue, on the therapeutic effect of ultraviolet lights. Members of the Chicago Medical Society are invited.——Dr. John J. Moorhead, New York, addressed a joint meeting of the Chicago Society of Industrial Medicine and Surgery, December 1, and held a clinic the following day at St. Luke's Hospital.——The Chicago Medical Post number 216, American Legion, will hold its annual meeting and election of officers at the University Club, December 7; dinner will be served at 6:30.——At the recent annual meeting of the Chicago Gynecological Society, Dr. Joseph L. Baer was elected president; Drs. William M. Thompson and David A. Horner, vice presidents, and Dr. Sydney S. Schochet, secretary; Drs. Emilius C. Dudley, Henry T. Byford and Edmund J. Doering were elected honorary presidents. Dr. Carey Culbertson gave an address on "Review of the Early Years of the Chicago Gynecological Society," and Gordon J. Laing, Ph.D., of the University of Chicago, spoke on "Trials of the College Professor."

INDIANA

Hospital News.—St. Mary's Mercy Hospital, Gary, is erecting an addition which will increase its capacity to 250 beds. New by-laws have been adopted, and the hospital has been departmentalized. The Society of the Poor Handmaids of Jesus Christ, who operate this hospital, is to organize and direct the St. Catherine's Hospital which is being erected at East Chicago at a cost of $1,250,000.

New Home of State Health Department.—The first and second floors of the building represented here are the new home of the state board of health at the corner of Market Street and Senate Avenue, Indianapolis. This building was the old medical building of the state university, from which it was recently purchased for $100,000 and reconstructed at a cost of about another $100,000. All departments of the state board of health are now in this building. The executive offices are on the first floor, and the laboratories and other departments are on the second floor. The new quarters are well arranged and convenient. The top floors of the building, now known as the State House Administration Building, are occupied by the state highway commission.

Society News.—The twelfth annual meeting of the Indiana Society for Mental Hygiene will be at the Claypool Hotel, Indianapolis, December 5; among the speakers will be Dr. Edson J. Emerick, Columbus, Ohio, and Dr. Frank P. Norbury, Jacksonville, Ill.—— Dr. Arlie R. Barnes, Mayo Clinic, Rochester, Minn., discussed "Problems in the Diagnosis and Treatment of Hyperthyroidism" at the seminar of the Indiana University School of Medicine, Indianapolis, November 16. Cases were selected from the Indiana University hospitals for discussion, and refreshments were served following the meeting.——The annual meeting of the St. Joseph County Medical Society, South Bend, November 16, comprised medical, surgical and pediatric clinics in the morning, the presentation of papers in the afternoon and a banquet in the evening. Among the speakers were Dr. Arthur H. Parmelee, Oak Park, Ill., whose subject was "Care of the New-Born Infant"; Dr. Louis H. Newburgh, professor of clinical investigation, University of Michigan Medical School, Ann Arbor, "Obesity"; Dr. Vernon C. David, associate clinical professor of surgery, Rush Medical College, Chicago, "Problems in the Management of Osteomyelitis," with lantern slides, and Dr. George W. Hall, clinical professor of neurology, Rush Medical College, Chicago, "The Nervous Patient: His Fears of Phobias."——A demonstration of a health examination on apparently healthy persons was conducted before the Lake County Medical Society, November 10, by Dr. James R. Greer, assistant clinical professor of medicine, Rush Medical College, Chicago.—— Dr. John A. Wolfer, Chicago, addressed the Elkhart County Medical Society, Elkhart, October 13, on "Chronic Duodenal Obstruction," and Dr. Albert E. Bulson, Jr., Fort Wayne, on "Simple Glaucoma."—— The Madison County Medical Society gave a dinner, October 18, at Anderson in honor of Dr. and Mrs. Frank W. Cregor. Dr. Cregor is president of the state medical society for 1927, and Mrs. Cregor is president of the woman's auxiliary of the state association. Following the dinner, Dr. Cregor held a clinic in skin diseases with cases provided by members of the society.

MAINE

Personal.—Dr. Amanda Louise Stoughton, West Hartford, Conn., has accepted a position with the state department of health of Maine; Dr. Stoughton is a graduate of the Johns Hopkins University School of Medicine.——Dr. Calvin M. Thomas, Brewer, was elected president of the Penobscot County Medical Society for the ensuing year at the annual

meeting; Dr. Edwin T. Wyman, Boston, addressed the society on this occasion on "Use of the Ultraviolet Rays in Treatment with Special Reference to Children."

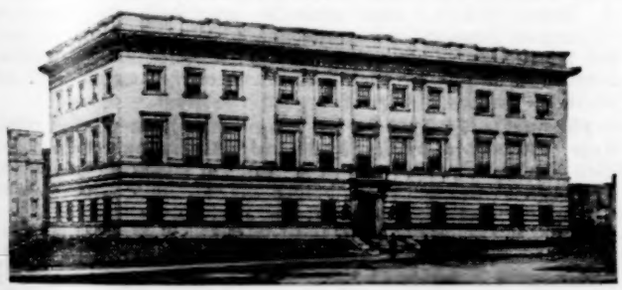
Crippled Children's Clinic.—Dr. Frank R. Ober, Boston, conducted a clinic for crippled children at the Bar Harbor Hospital, October 10, under the auspices of the Hancock County Medical Society and the county health department. Transportation for the children was provided by the superintendents of schools. About thirty-three children were examined. The auxiliary of the local American Legion Post and the Women's Literary Club served luncheon, and assisted in caring for the children and in doing clerical work. There was a fine spirit of cooperation. The local physicians assisted, and county nurses are now cooperating with the families and physicians in carrying out treatment or preparing the children for hospitalization.

MARYLAND

Hospital for Firemen.—The Baltimore City Fire Department has established a modern infirmary for the treatment of its own men by fire department physicians. Heretofore the sick and injured firemen were treated at the offices of physicians; now they are sent to the infirmary in ambulances and the number treated since the infirmary opened is said to average twenty a day. Drs. Frank N. Ogden, James E. Peterman and Oliver S. Lloyd are in charge of the infirmary.

Another Rural Health Center.—The latest addition to health centers in Maryland is at Kitzmiller in Garrett County. It was built by the community, some industrial concerns providing lumber and paint, while three painters in the neighborhood gave their time to transform the appearance of the building which had been secured. Three carpenters rearranged the interior of the building, providing shelves for linens and other supplies kept by the public health nurse, and partitioning off two rooms for community needs, health conferences, immunization clinics, health clubs and classes, and other related activities. Two other neighbors installed electric lights. A teacher and some girls from the high school tinted the walls, and a business firm in an adjoining town donated the furniture.

Trustees Accept Plans for the Welch Library.—The plans prepared by the architect for the new William H. Welch Medical Library of Johns Hopkins University School of Medicine have been accepted by the trustees, and work on the building will begin at once on the southeast corner of



Monument and Wolfe streets. The architecture is in the style of the Renaissance. The base of the building will be of Deer Island pink granite, and the remainder of gray Indiana limestone. There will be three stories and a basement, with a marble staircase leading from the entrance to the main floor; this space will be devoted to offices for the director and assistants, a lecture room, a large reading room, small study rooms and the most modern stacks to accommodate about 450,000 volumes. The General Education Board, New York, made the library possible by a gift of $750,000, and has agreed to give an additional $250,000 for maintenance of the library and of the chair of history of medicine on condition that the university raise $500,000 for maintenance. Dr. William H. Welch, director of the library, is now in Europe studying medical libraries.

MISSISSIPPI

Personal.—Dr. William E. Noblin, Yazoo City, assumed charge of the Hinds County Health Department, November 15. Dr. Noblin has been health officer of Yazoo City for about eight years.——Dr. Fred T. Foard of the U. S. Public Health Service for several months has been assisting Dr. Calvin C. Applewhite, director of county health work, in organizing full-time health departments in the Delta counties. Dr. Foard came to Mississippi from the San Joaquin County Health Department, California.——Dr. Robert R. Kirkpatrick has resigned as chief of the Coahoma County Health Unit and is studying at the eye, ear, nose and throat hospital, Memphis, Tenn.——Dr. Dolph V. Galloway, formerly of Raymond, is now chief of the Coahoma County Unit.——Dr. Ben R. Heninger, formerly on the staff of Touro Infirmary, New Orleans, is now head of the medical department at Columbia Hospital, Columbia.

Society News.—The state tuberculosis association met with the Hinds County Tuberculosis Association at Jackson, October 6; Dr. Henry Boswell, Jr., of the Mississippi State Tuberculosis Sanatorium gave a review of the work being done throughout the state to improve the tuberculosis situation, and indicated what steps were necessary to hasten progress. Mrs. Robert Phifer, executive secretary of the state tuberculosis association, made a plea for the Christmas seal sale and gave an account of the children's health camp, which has successfully terminated its third season. Dr. Felix J. Underwood was toastmaster.——The Central Medical Society was entertained by the staff of the Mississippi State Tuberculosis Sanatorium, October 18. Papers were presented by members of the staff, including that of Dr. Jesse L. Roark on "Tuberculosis of the Mammary Glands," a clinical demonstration by Dr. Braxton B. O'Mara, and case reports by the assistant superintendent, Dr. Charles E. Walker; Dr. Boswell's address was on the value of cooperation between general practitioners and the staff of the sanatorium; Dr. Emmett D. Kemp discussed "Pulmonary Roentgenology"; Dr. Hugh M. Anderson, "Artificial Pneumothorax." Dr. Underwood closed the meeting with a brief talk.——The Issaquena-Sharkey-Warren County Medical Society met in Vicksburg, November 8; among others, Dr. John A. K. Birchett, Jr., read a paper on "Artificial Pneumothorax in Treatment of Lesions of the Lung," and Dr. Ewing F. Howard on "Medical Ethics." The society will hold a similar meeting, December 13, at Vicksburg, when Dr. Joseph Hume, formerly professor of genito-urinary and venereal diseases, Tulane University of Louisiana School of Medicine, New Orleans, Dr. Charles Jefferson Miller, professor of obstetrics and clinical gynecology at Tulane, and Dr. John J. Shea, Memphis, Tenn., will speak.——At the annual meeting of the Clarksdale and Six Counties Medical Society, November 9, Dr. James D. Biles, Sumner, was elected president. Among others, Dr. Andrew J. Brown, Clarksdale, read a paper on "Light Therapy in General Practice," and Dr. Percy W. Toombs, Memphis, "Observations on Toxemias of Pregnancy." The next meeting will be in Clarksdale, March 28.

MISSOURI

University News.—The alumni of St. Louis University have drawn articles of incorporation. There are more than 10,000 alumni, it is said, and the university is the oldest educational institution west of the Mississippi. The board of governors of the alumni of the medical school comprises Drs. James F. McFadden, Alver H. Kerper and Helmuth H. Kramolowsky. Applications for admission to the freshmen class of the medical school this year numbered 483, of which 183 were accepted.

Hospital News.—The Mullanphy Hospital, St. Louis, which was wrecked by the recent tornado, will be rebuilt on Kingshighway Memorial Boulevard, between Spalding and Wabada avenues, by the Sisters of Charity of St. Vincent de Paul, who have been in charge of the hospital since 1828. The new site was acquired by the sisters about a year ago, and the new buildings which, it is said, will cost about $1,000,000 will be completed in time for the celebration of the centennial of the hospital next year.

Horton's License Ordered Restored.—The Ray B. Horton case entered another phase, November 14, when Judge Hall of the circuit court of St. Louis ordered the state board of health to restore Horton's license to practice medicine in Missouri. It will be recalled (THE JOURNAL, Nov. 21, 1925, Jan. 9, 1926, March 26, 1927, June 18, 1927) that Horton's license was revoked by the state board of health in May, 1927, after he was found guilty by the board of false and fraudulent statements in his application for a license. The next phase in this case probably will be an appeal to the supreme court of Missouri by the state board of health.

Personal.—Dr. Lee E. Monroe is reported to have resigned as manager of the Bonne Terre Hospital, Bonne Terre, effective next May.——Dr. Montrose T. Burrows has resigned as head of the research department at the Barnard Free Skin and Cancer Hospital, St. Louis.——Dr. and Mrs. James M. Billings, Lebanon, celebrated their sixtieth wedding anniversary, October 22; their friends tendered the couple a reception at the church which was attended by a remarkable

outpouring of people of Laclede County where Dr. Billings has practiced for many years. —— Dr. Luther D. Greene, Richmond, has been appointed a member of the board of regents of the Marysville State Teachers' College.

St. Louis Medical Society Dedicates New Building.—The new building of the St. Louis Medical Society was officially dedicated to medical science, November 1. Although the night was stormy, more than six hundred members with their wives and friends were present to commemorate the occasion and enjoy the "sumptuous furnishings" and the dance in the basement built for just such occasions. The president of the society, Dr. Charles A. Vosburgh, presided; addresses were given by Dr. McKim Marriott, dean of the Washington University School of Medicine, the Rev. Alphonse M. Schwitalla, regent of the St. Louis University School of Medicine, Isaac H. Lionberger, an attorney who has for years shown an interest in the St. Louis Medical Society, and Dr. Amand N. Ravold, former president of the society. Dr. Jabez N. Jackson, President of the American Medical Association, and Victor J. Miller, mayor of St. Louis, were prevented from attending, Mayor Miller on account of illness and Dr. Jackson on account of injury in an automobile accident. The new building, one of the finest in the country devoted to medicine, is a splendid tribute to the spirit of progress in St. Louis. It is the second real home of the society, the first having been built in 1906, partly through the efforts of Dr. Alonzo R. Kieffer, treasurer of the St. Louis Medical Society for eight years; he saved sufficient funds to encourage the society to begin constructing an auditorium on ground leased from the St. Louis Medical Library Association, which organization consolidated with the St. Louis Medical Society in 1913. The library thus became the property of the medical society and both prospered by the union. The old buildings on Pine Street were outgrown, and a movement for a new building was started. Drs. Emmett P. North, in 1921, and William W. Graves, in 1922, then the presidents, repeated previous pleas for a new home; succeeding presidents carried on the work and through untiring committees, the society as a whole and friends this splendid structure was erected and equipped at a cost of about $300,000. The library comprises about 25,000 volumes. The building has an auditorium seating 1,000 persons. There are administrative offices, a lounge, a kitchen and a basement room which will seat 400 persons.

NEW JERSEY

Society News. — The members of the Gloucester County Medical Society were the guests of Dr. James Harris Underwood, Woodbury, October 26, at the Underwood Hospital, where they were addressed by Drs. John A. Kolmer and Theodore H. Weisenburg, both of Philadelphia, who spoke on infantile paralysis.——Dr. Norman E. Titus, New York, will address the Atlantic County Medical Society, December 9, Hotel Chalfonte, Atlantic City, on "Diathermy," and Dr. Edward L. Keyes, professor of urology, Cornell University Medical College, New York, on "Observations on Renal Calculi and Silent Stones."

Increase in Diphtheria.—Attention is drawn to the increase in the number of cases of diphtheria in New Jersey by the state department of health. There were 3,746 cases reported in the first nine months of this year, an increase of 1,191 over the same period of 1926. During September 330 cases were reported in eighty-six municipalities in nineteen of the twenty-one counties of the state. This is the greatest number reported in September since 1923. It would seem, in view of the usual seasonal increase in the prevalence of diphtheria, that New Jersey will have during the next few months a great many cases. The state department requests the cooperation of physicians, and health and school officials in a state-wide immunization campaign. It is estimated that there are about 350,000 children in the state under 5 years of age, and it is in this group that about two thirds of the fatal cases occur.

Census of Crippled Children.—A survey has been conducted by the New Jersey State Commission for Crippled Children in an effort to locate all cripples under 16 years of age in the state to the end that steps might be taken to help to minister to their needs whether medical, vocational or educational. The public, private and parochial schools, the hospitals, philanthropic agencies, municipal departments, fraternal organizations, veterans' organizations, parent-teacher associations, the state medical society, individual physicians, insurance agents and welfare workers assisted in the survey. The crippled children's commission, which was appointed by the governor, is under the chairmanship of Joseph G. Buch, Trenton. The data collected will be submitted in the form of a report to the legislature with recommendations for the relief of New Jersey's crippled children.

NEW YORK

Second Harvey Lecture.—Dr. Frank C. Mann, director, division of experimental surgery and pathology, Mayo Clinic, Rochester, Minn., will deliver the second Harvey lecture at the New York Academy of Medicine, Friday evening, December 9, on "The Relation of the Liver to Metabolism."

Convalescent Serum and Infantile Paralysis.—Dr. William Lloyd Aycock, Harvard University Medical School, Boston, addressed the New York State Association of Public Health Laboratories at Albany, November 4, on infantile paralysis. Dr. Aycock is reported to have said that an extremely large proportion of the population is immune to infantile paralysis and that not more than one child in 1,000 exposed will develop the disease; as a result there are many healthy temporary carriers of infantile paralysis. Dr. Aycock made a study during the present epidemic of treating preparalytic cases with convalescent serum which, to be effective, he believes, must be used within thirty-six hours after the appearance of the first symptom. He administered a total of from forty to fifty cubic centimeters; fifteen to twenty cubic centimeters intraspinally on each of two succeeding days and the remainder intravenously at the time of the intraspinal injection. According to New York *Health News*, about 90 per cent of his patients thus treated fully recovered. In discussing this paper, Dr. Edward S. Godfrey, Jr., of the state department of health, pointed out that Dr. Aycock's findings regarding the efficacy of convalescent serum were defective in that no controls were made and that before the therapeutic value of convalescent serum can be accepted a like series of patients untreated with the serum must be observed.

New York City

Societies with Similar Names.—The president of the American Stomatological Association desires it to be announced, in view of the fact that the newer society has been mistaken for the older one, that the recently organized American Society of Stomatologists has no connection whatever with the American Stomatological Association. Alfred J. Asgis, D.D.S., who recently organized the American Society of Stomatologists, the announcement states, resigned his membership in the American Stomatological Association last June and since then has not been connected with the society.

Personal.—Dr. Maurice O. Magid has been elected president of the New York Physicians' Association for 1928.—— Dr. Harlow Brooks presented lantern slides, depicting the old days at Camp Upton, before the autumn meeting of the Caduceus Post of the American Legion, November 22.—— Dr. Haven Emerson, professor of public health administration, Columbia University College of Physicians and Surgeons, gave a series of lectures in London at the invitation of the health section of the League of Nations, November 28-December 3. According to *Science*, his topics were "Epidemiology in Noncommunicable Diseases"; "The American Program for the Prevention of Heart Disease," and "Diabetes Mortality from the Public Health Point of View."—— Dr. Hideyo Noguchi of the Rockefeller Institute for Medical Research arrived on the British Gold Coast in Africa, November 17, where he will study the yellow fever problem and other tropical diseases.

Tommaso Armonia Arrested. — Dr. Tommaso Armonia, who until recently lived at 340 Rahway Avenue, Elizabeth, N. J., and who is said to have practiced medicine in Brooklyn and in West New York, N. J., was arrested, November 9, at Germantown and held under bail on a charge of illegally transporting automobiles between states. According to the New York *Times*, he confessed to having received and disposed of thirty-seven stolen cars. In the last edition of the American Medical Directory, Armonia's name appears among the "addresses unknown." The *Times* states that he has served prison terms under the names of John Wayte, Paul J. Paraent and Raoul Paraent. He was sentenced to jail for three years in 1910 on a charge of burglary; for from three to ten years in 1913 when convicted of assault, and again in 1923 for ten years on a charge of forging checks. He is said to have been arrested, in 1924, in New York on a charge of practicing medicine without a license; he fled, forfeiting $1,000 bail.

Mental Hygiene Lectures Oversubscribed.—The Onandaga Health Association is sponsoring a course of lectures on "Mental Hygiene of Normal Childhood" at Syracuse as follows:

"Your Mind and You," October 13, Dr. George K. Pratt of the National Committee of Mental Hygiene.
"Heredity and Environment as a Basis for Mental Health," October 20, Dr. Abraham Myerson, Boston.
"Habit Training for Young Children," October 27, Dr. Lawson G. Lowrey, New York.
"Relationships Between Parents and Children," November 3, Dr. Esther L. Richards, Baltimore.
"Special Abilities and Disabilities," November 10, Augusta F. Bronner, Ph.D., Boston.
"The Delinquent Child and the Delinquent Community," November 17, Dr. Ira S. Wile, New York.
"Mental Hygiene in the School," December 1, Dr. Marion E. Kenworthy, New York.
"Special Problems of High School Years," December 8, Dr. Arthur H. Ruggles, Providence, R. I.

Tickets for the entire course have been sold out and no single admission tickets will be sold. Plans were made to accommodate 500 persons, whereas on the opening night more than 800 were present.

Drive **Against Cancer.**—A two weeks' campaign to educate the public in the control of cancer opened, November 21, with a public meeting at the New York Academy of Medicine sponsored by the American Society for the Control of Cancer. To bring the subject before the public, billboards, the radio, the distribution of literature and public meetings will be used. Arrangements have been made with many hospitals to provide examinations and diagnoses for the public. At the opening meeting, Dr. Harry Gideon Wells of the University of Chicago gave an address on "Significance of Cancer Statistics," and Maud Slye, Ph.D., of the University of Chicago, spoke on "The Relation of Heredity to Cancer." These papers were discussed by Ira V. Hiscock, assistant professor of public health, Yale University School of Medicine, and Dr. James Ewing, professor of pathology, Cornell University Medical College, respectively. Dr. Kendall Emerson of the state cancer clinic, Worcester, Mass., spoke on "How the Cancer Problem Is Handled in Massachusetts," and his paper was discussed by E. H. Lewinski-Corwin, Ph.D. The president of the academy of medicine, Dr. Samuel W. Lambert, presided. It is reported that 7,033 deaths from cancer occurred in New York City last year.

Society News.—Dr. Foster Kennedy addressed the Medical Society of the County of New York, November 28, on "Neurologic Problems of the General Practitioner" and Dr. Israel Strauss, "Therapeutics of Nervous Diseases."——The Medical Association of the Greater City of New York was addressed, November 21, by Dr. Louis F. Bishop on "Practice of Cardiology by the Help of Graphic Methods"; before the lecture there was a demonstration of patients and the electrocardiograph and fluoroscope by members of the society; following the lecture there was a stated discussion on cardiology.——Dr. John F. W. Meagher, among others, addressed the Medical Society of the County of Kings, October 18, on "Adolescent Mentality and Crime."——Dr. Martin E. Rehfuss, Philadelphia, addressed the Flatbush Medical Society, November 11, on "Ulcers of the Stomach and Intestines."——Dr. George Mosher has been elected president of the Beth David Hospital Clinical Society for the ensuing year.——The Physicians' Home, Inc., comes into the possession of additional property valued at $70,000 by the will of the late Dr. Lewis D. Mason of Brooklyn.——The New York Gastro-Enterological Association will hold a symposium on esophageal disorders, December 13, 4 o'clock, at the New York Academy of Medicine, to which physicians are invited. The speakers will be Dr. Chevalier Jackson, Philadelphia, who will give lantern slide and moving picture demonstrations, and Dr. Alexander S. MacMillan, Boston. The discussion will be by Drs. Sidney Yankhauer, Douglas Quick, Max Einhorn and Armistead C. Crump.——A symposium in memory of Lister was given, November 30, by the section of historical and cultural medicine of the New York Academy of Medicine; the speakers were Drs. Thomas Archibald Malloch, George D. Stewart, John Tait, Montreal, and Fielding H. Garrison, Washington, D. C.

OREGON

Dr. Josephi Honored.—Dr. Simeon E. Josephi was guest of honor at a testimonial dinner, November 5, sponsored by the Portland City and County Medical Society, the Portland Academy of Medicine and the staff of the Good Samaritan Hospital in honor of his fiftieth year in the practice of medicine. Dr. Josephi came to Portland after his graduation from medical school in San Francisco; he has devoted himself to the service of the community in general as well as to his profession and has held office in various medical societies. He was a state senator, a superintendent of the state hospital and for many years the dean of the University of Oregon Medical School and is now dean emeritus. The dinner was attended by eighty-five physicians and was presided over by Dr. Calvin S. White. The speakers included Drs. Andrew C. Smith, John Earl Else, Kittie Plummer Gray, Andrew J. Giesy, Albert E. Mackay, and the superintendent of the Good Samaritan Hospital, Miss Emily L. Loveridge.

PENNSYLVANIA

Personal.—Dr. Paul Titus, Pittsburgh, addressed the section on obstetrics and gynecology of the New York Academy of Medicine, November 22, on "Recent Advances in Obstetric Technic," with lantern slides and motion pictures.

Gavels for Ex-Presidents.—At the annual meeting of the Pennsylvania State Medical Society, Pittsburgh, gavels were presented to Ex-Presidents Adolph Koenig, Pittsburgh; William L. Estes, Bethlehem; Theodore B. Appel, Lancaster; L. H. Taylor, Williamsport, and Edward B. Heckel, Pittsburgh, to whom gavels had not been previously given since the adoption by the society of this custom.

Dr. McKinley Does Not "Choose to Run."—A rising tribute was paid at the recent annual meeting of the Pennsylvania State Medical Society at Pittsburgh to Dr. Henry Clay McKinley, Meyersdale, who has been secretary of the Somerset County Medical Society during its entire existence of thirty-seven years. Dr. McKinley, who is 87 years of age, recently notified his society that he does not choose to be a candidate for secretary next year.

Society News.—Dr. John B. Carnett of the Post-Graduate Medical School of the University of Pennsylvania, Philadelphia, addressed the Schuylkill County Medical Society on "Differential Diagnosis Between Intra-Abdominal Lesions and Neuralgia of the Abdominal Wall." The society met at the Locust Mountain State Hospital, Shenandoah, where Dr. Herbert H. Holderman conducted a clinic.——The Washington County Medical Society conducted a clinical meeting, November 9, at the Masonic Temple, Washington, under the leadership of Drs. Edward J. G. Beardsley and Edward J. Klopp, associate in surgery, Jefferson Medical College, Philadelphia. Ten cases were presented at the meeting. Physicians were present from Wheeling, Uniontown and Pittsburgh. At the annual banquet, Dr. J. Frank Donehoo, Washington, presided. In addition to the Philadelphia visiting clinicians, the speakers included Judge Crumrine, Washington; Henry W. Temple, representative in Congress, and Dr. Harry J. Bell, Dawson.——Dr. Henry H. M. Lyle, associate professor of surgery, Cornell University Medical College, New York, addressed the October meeting of the Berks County Medical Society on "Disabilities of the Shoulder Joint."——Dr. Arthur C. Morgan, president of the Pennsylvania State Medical Society, Philadelphia, addressed the Luzerne County Medical Society, recently, on "Heart Tragedies," and the Union County Medical Society, Lewisburg, on "The Inferiority Complex of the Doctor in the Country."——Dr. Otto H. Strouse, Perkasie, was elected president of the Bucks County Medical Society at the annual meeting at Chalport, November 16.——Monroe County Medical Society, during their annual meeting, November 22, visited the Swiftwater Laboratories.

Philadelphia

Dr. Jackson Decorated by Belgium.—Prince Albert de Ligne, ambassador to the United States from Belgium, conferred on Dr. Chevalier Jackson, chief of the bronchoscopic clinic at Jefferson Hospital, the Knighthood of the Order of Leopold, November 22, at an informal luncheon in the Belgian Embassy, Washington, D. C.

Society News.—Dedication of Honor Room.—The Philadelphia County Medical Society will dedicate the honor room and unveil the memorial tablet, December 7, 8:30 p. m. The president, Dr. Frederick S. Baldi, will give the address of welcome. Surg. Gen. Merritte W. Ireland will speak on "The Army"; Surg. Gen. Edward R. Stitt on "The Navy," and Major General John A. Lejeune on "The Marine Corps"; Dr. Orlando H. Petty will unveil the tablet.——The Northern Medical Association, Philadelphia, held a symposium on goiter, November 21, at the Majestic Hotel; the speakers were Drs. Charles H. Frazier, William B. Mosser, Israel Bram and Joseph Sailer.——Dr. Afranio do Amaral, among others, addressed the eastern Pennsylvania chapter of the

Society of American Bacteriologists, November 27, at Jefferson Medical College on "The Anti-Snake Bite Campaign in the United States."——The president elect of the Philadelphia County Medical Society, Dr. Isidor P. Strittmatter, entertained at his home on November 10, Thursday afternoon and evening the officers of the society and chairmen of all standing committees.——Dr. David Nathaniel Kremer addressed the West End Medical Society, November 16, on "Dietary Management of Diabetes Mellitus."

UTAH

Society News.—Drs. Howard W. Fleming and Alson R. Kilgore of San Francisco addressed the Salt Lake County Medical Society, recently, on "Diagnosis of Neurosurgical Lesions and Operating Room Pathology of the Breast." Dr. Edward N. Roberts of Pocatello, Idaho, addressed the society, October 10, on "Surgical Errors," and Dr. Thomas F. Mullen, Pocatello, on "Development and Surgical Significance of the Orbicularis Oris Muscle."——At the October 12 meeting of the Utah County Medical Society, among others, Dr. Barnet E. Bonar, Salt Lake City, read a paper on "Diagnosis and Treatment of Pneumonia in Children."

WASHINGTON

Results of Basic Science Act.—Sufficient time has elapsed, *Northwest Medicine* states, to demonstrate results already accomplished since the basic science act was passed in Washington and to suggest what may be anticipated from its enforcement. This law requires that all persons caring for the sick must pass an examination in anatomy, physiology, chemistry, pathology and hygiene. The department of license at Olympia reports that doctors of medicine and a "fair percentage of osteopaths" are successfully passing this examination, but the chiropractors, sanipractors and other forms of drugless healers have been conspicuous by their absence; in fact, it is said, there have not been enough applicants of late from some of the cults to make necessary an examination. A marked reduction in the number of healers of various sorts who have been flocking to Washington recently is already noted.

Society News.—The Whitman County Medical Society resumed its radio health talks over Station KWSC, Pullman, October 19, and plans to continue broadcasting on the first and third Wednesday of every month until May, 1928. Dr. Mitchell Langworthy, president of the Spokane County Medical Society, addressed the October 3 meeting on "Important Causes of Backache."——At the December 5 meeting of the King County Medical Society, Seattle, Dr. Charles R. Castlen will speak on "Tumors of Lungs"; Dr. Erestus T. Hanley, "Social Service Work of the Health Department," and Dr. Albert C. Feaman of the U. S. Veterans' Bureau on "Treatment and Pathology of Pulmonary Tuberculosis."——Dr. John M. Henderson addressed the Seattle Radiological Society, October 25, on "The Diagnosis of Empyema."——Dr. Verne C. Hunt, Rochester, Minn., will be the guest of the Seattle Surgical Society January 13-14; members of the King County Medical Society are invited to attend the surgical clinics.

GENERAL

Association for Research in Nervous and Mental Disease.—The annual meeting of this association will be held at the Hotel Commodore, New York, December 28-29, under the presidency of Dr. Charles A. Elsberg, New York. The scientific program has been arranged under the following general heads: (1) the nature, mechanics and general investigation of intracranial pressure; (2) decreased and increased intracranial pressure; (3) increase of intracranial pressure in tumors and other expanding lesions of the brain; (4) methods for the reduction of increased intracranial pressure. The number of papers to be presented under each of these four divisions range from three to fifteen; the speakers have been selected from ten of the large cities of this country.

The Infantile Paralysis Situation.—There was a decrease of nearly 12 per cent in the number of cases of infantile paralysis reported to the U. S. Public Health Service for the week ending November 12, from forty-three states as compared with the reports for the preceding week. Three hundred and seventeen cases of infantile paralysis were reported, while for the week ending November 5, there were 400 cases and for the week ending October 29, 453. Slight increases in the number of cases were reported in Pennsylvania, Illinois, Iowa, Idaho, Oregon, but in all of these states except Idaho the prevalence of the disease is less than it was a few weeks ago. Reports for the last three years in thirty-nine states for the week ending November 12 were for 1925, 72 cases, for 1926, 52 cases, and for 1927, 267.

American Board of Otolaryngology.—One hundred and two applicants appeared for examination before the American Board of Otolaryngology at the examination in Detroit, September 12, with 0.107 per cent failures; at the examination held in Memphis, November 14, previous to the meeting of the Southern Medical Association, there were 0.127 per cent failures. During the last year, 369 applicants have been examined. During 1928, examinations will be held in Minneapolis, June 11, at the meeting of the American Medical Association, and in St. Louis, October 15, during the meeting of the American Academy of Ophthalmology and Otolaryngology. Applicants for certificates should address the secretary, Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, for application blanks. The president of the board of otolaryngology is Dr. Harris P. Mosher, Boston.

Societies Going to Europe.—The American College of Physical Therapy, the International League Against Epilepsy and the American Psychiatric Association will visit European centers next year, and physicians generally are invited to participate in these visits to medical centers. The American College of Physical Therapy will sail from New York, May 26, 1928, for London, Paris, Montreux, Zurich, Vienna, Berlin and Copenhagen, visiting among other places Professor Rollier's hospital in Leysin, the Finsen Institute in Copenhagen, and being the guest of the society of Electrotherapy and Radiology of France, and sailing for New York, July 4. The International League Against Epilepsy sails from New York, March 17, on the S. S. *Caronia* for London, Amsterdam, Cologne, Bielefeld, Vienna, Munich, Berne and Paris, visiting, among other places, the Bethel Colony of Epileptics in Germany, visiting Professor Spielmeyer in Vienna, and sailing from Havre for New York, April 28.

Loss of Light Through Smoke.—A study of the decrease in light due to smoke is being made by the U. S. Public Health Service in New York City at the lower end of Manhatten. In January of this year the experiment showed that on sunny days the average loss of daylight due to smoke was 42 per cent at 8 o'clock in the morning and 18 per cent at noon. These amounts of loss of daylight decreased as the year advanced until in June the loss at 1 o'clock was 33 per cent, and at noon 6 per cent. These figures were for clear, sunny days; the loss is much greater for foggy days. Records of daylight in Washington have been kept by the public health service more than three years. They show that at noon on a bright day in midsummer the illumination seldom exceeds 10,000 foot-candles, while in midwinter at noon on a bright day the illumination seldom exceeds 3,500 foot-candles. Great variations in daylight take place when small clouds pass over the sun on a clear day. In such cases, the public health service states, the light may fall from 9,000 or more foot-candles to 3,000 or less in one minute's time and return to the original amount during the succeeding minute. These facts and others were part of the three hundred and third public health broadcast by radio from the U. S. Treasury Department.

National Scholarships in Child Development.—The National Research Council announces national scholarships in child development for 1928-1929 under a grant of the Laura Spelman Rockefeller Memorial. They are open to college graduates of the United States and Canada with at least one year of graduate work who have had training in sciences basic to the study of child development. A limited number of scholarships are available to men. Successful applicants are assigned to certain institutions offering opportunities in laboratory, clinic and instruction serving the ends contemplated by the scholarships, where they work under the guidance of approved directors who submit to the Committee on Child Development semiannual reports concerning the work. The basic stipend is $1,000 for nine months with an option of an additional $200 for a summer session of six weeks, which may be spent at any other than the assigned institutions. Among the specific fields of investigation open to scholars are anatomy, health, mental hygiene, pediatrics, orthopedics, physiology, psychology and sociology, anthropology and nutrition, all as applied to the study of the young child and to parent education. On the termination of their appointment, scholars are required to submit to the committee reports summarizing the year's activities and progress. Application must be made in duplicate on forms provided and filed in the office of the executive secretary by Jan. 21, 1928. Requests for application blanks and other information should be addressed to L. R. Marston, executive secretary, Committee on Child Development, National Research Council, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 12, 1927.

The Prevention of the Marriage of the Mentally Deficient

The mental hospitals committee of the London county council prepared a recommendation that the government be asked to promote legislation making illegal the marriage of a person who is the subject of an order for detention as a mental defective. The matter arose on a resolution from the Leicestershire county council calling for segregation of mental defectives, with a view to the prevention of the propagation of such persons. The Southampton, Derbyshire and Cornwall county councils had also sent resolutions in favor of preventing the marriage of the mentally defective, and making the burden of institutional accommodation for such persons a state charge. The London county council committee, while not prepared to endorse such broad proposals, was of opinion that it should be made illegal for any mentally defective person under a detention order to marry. They stated: "We have been advised that this proposal, if it should become law, would have the effect in a marriage—one party to which is a mentally defective person the subject of a detention order—of debarring either party from legally claiming any right to the property of the other party as the husband or wife of the other, inasmuch as the parties would not in fact have been married. Also, that as the children of such a union would be illegitimate they could not legally claim any rights in the property of their parents under the laws of intestancy, and that any disposition of property which was intended to be in favor of such children might be ineffective unless very specially worded. There would be an addition to the risks at present attendant on a purchase of property, as a title to property which is dependent on a marriage, evidence of which has been apparently proved by production of a marriage certificate, might subsequently be held to be bad on the ground that one of the parties concerned was at the time a mentally defective person. Notwithstanding these considerations, we are of opinion," added the committee, "that legislation such as we suggest is desirable."

However, surprise was created at the next meeting of the London county council by the sudden withdrawal of the recommendation of the committee. It appears that it was learned that the municipal reform party—the party in power on the council—would not support the proposal, giving as a reason that the question should be considered nationally rather than locally.

The Prevention of Maternal Mortality

At a meeting of representatives of women's organizations all over the country, called to arouse public opinion regarding the gravity of the present maternal mortality, Sir George Newman, principal medical officer of the ministry of health, in the course of an address, said that the ultimate object of that meeting was the education of young Englishwomen in the importance of this matter. According to the averages of the last ten years, every year 750,000 women in England and Wales gave birth to children. In rendering that service to the nation, however, 3,000 of them lost their lives, and some thousands of others were so seriously injured that their health was permanently impaired. Three things were urgently necessary. First, there was need for antenatal hygiene. If all the 750,000 women had a knowledge of antenatal hygiene and were willing to practice it, there would be a substantial reduction both in mortality and in impairment. The local authorities had provided between 700 and 800 antenatal centers, and this measure was good as far as it went, but at present only a comparatively small fraction of the 750,000 were receiving effective assistance in antenatal hygiene. More important than such organized provision was the creation of a public opinion which would lead the woman to consult her physician at the earliest possible juncture. Secondly, partly because of the need for satisfactory treatment, and partly because of the frequent inadequacy and unsuitability of home accommodation, there were many cases in which the mother should have been delivered in a maternity home rather than in her own home. The ministry of health was doing its best to encourage local authorities and voluntary hospitals to remedy the existing deficiency in maternity beds. Since 1919, when the ministry of health was organized, 150 maternity homes with 2,300 beds had been established or approved, but there was great need for further provision. A third need was to make available for every mother skilled and competent assistance at the time of childbirth. Arrangements had been made by the responsible authorities for the more thorough training of the pupil midwife and the medical student, but there was still need for reform.

British Medical Association Opposes Bill for the Registration of Opticians

Following the osteopaths, the prescribing opticians are attempting to obtain state registration, a measure which the British Medical Association is strongly opposing. To the departmental committee, which has an optical practitioners registration bill under consideration, the association has presented the following evidence. The association is in favor of any measure which has the object of increasing the efficiency of opticians in their technical work of manufacturing and fitting lenses and spectacles, and would support the registration of opticians who devote their services to this work, as such registration would secure efficient work and would be in the interests of the public. But the bill proposes to create a new class of persons with special privileges in connection with the testing of sight, the interpretation of which essentially requires medical skill. Persons registered under the proposed bill would have the right to use after their names letters implying that they are recognized as qualified to practice sight-testing, and to charge and recover fees for such practice, and would also have the right to give certificates relating to visual acuity or visual defects. This would be misleading and indeed dangerous to the public because it would suggest that persons thus recognized, who have not had a complete medical and surgical training, are competent to treat all defects of vision irrespective of the cause of the defects, whether constitutional or otherwise. Many opticians call themselves by such titles as "ophthalmic opticians" or "optologists," have dark rooms and practice both retinoscopy and ophthalmoscopy. The British Optical Association holds examinations which include questions on pathologic conditions of the eye. An optician who practices ophthalmoscopy, and who advises and prescribes glasses for clients who consult him directly, poses by implication as an expert in the detection and treatment of eye defects, and claims medical knowledge which he does not possess. Doubtless, in uncomplicated cases of error of refraction, a trained optician can frequently prescribe the appropriate spectacles. He is, however, attempting to do work for which his equipment is incomplete. By the very terms of the "diploma" issued by the Worshipful Company of Spectacle Makers, the trained optician is prohibited to use mydriatic drugs, which are very frequently necessary for the accurate determination of errors of refraction. Further, an error of refraction is often the concomitant of a pathologic condition, such as

ciliary spasm, glaucoma, retinal disease and so on, which the optician is incapable of recognizing, and in which serious harm or even blindness may result.

The association therefore holds that it would be undesirable in the interests of the public to establish a register of opticians such as has been suggested. The proper function of an optician, they say, is not to prescribe glasses but to provide them on the prescription of an ophthalmic practitioner, and an official register of opticians would tend to mislead the public into thinking that registered opticians were competent to discharge functions which belong only to those who have had a medical training. The association objects to any proposal that would divorce the examination and treatment of eye defects from medical and surgical practice for the following reason: The eye is not a separate optical instrument, but a living and inseparable portion of the human body which shares its diseases. Not only are defects of vision frequently connected with conditions of local and general disease but the general health is frequently affected by ocular conditions, and the meaning and nature of these in each case can be properly ascertained and treated only by persons who have received a medical and surgical training. The most exact objective test of the refraction of the eye is retinoscopy. This cannot properly be performed in many cases without the use of mydriatics. Failure of sight is often the first symptom of general diseases requiring medical treatment. It has been said that in about 5 per cent of cases presenting some disturbance of the eye there is serious organic disease, but this is an understatement. In these cases there is commonly no warning of the nature of the disorder, the patient complaining simply of dimness of vision, which leads to a request for glasses. As the correction of the error of refraction, which commonly complicates these cases, may materially improve vision, the optician often considers that he has done all that is needed by giving glasses, whereas the root of the trouble remains undiscovered. Of the cases in which the error of refraction is the obvious feature, by no means all are straightforward "optical" cases in which the eyes as optical instruments independent of a human body may be dealt with by an optician with mechanical measuring instruments. Many of these have extreme myopia. A record of 7,000 patients seen in private practice shows that 480 between the ages of 20 and 60 years had three or more diopters of error. Of these, no less than 26 per cent showed serious conditions of eye strain or failure which required much more than "optical" treatment and among those engaged in close eye work, no less than 53 per cent had breakdowns.

Too Much Fresh Air in Hospital

"Enfeebled patients, shivering with cold in their beds, swept by wind and rain driving through open windows"—such is the description given by relatives of inmates of the Plymouth Workhouse Infirmary and published in the *Daily Express*. It adds: "People have gone with tears in their eyes to tell members of the board of the sufferings caused by the rule that all the windows must be kept open in all weathers. Lieutenant-Commander Morgans, chairman of the house committee, said 'I have been on the bridge of a destroyer in all sorts of weather, but I never experienced such discomfort as during my visit to the infirmary ward.'" Though the board sympathized with the complaints, Dr. Fox, the woman physician responsible, who was invited to attend the meeting, after listening to the appeals of members that some alteration should be made, replied that the complaints were grossly exaggerated. She gave no promise to relax her orders, and the board decided that they could only wait to see whether she made any attempt to comply with their wishes before considering what other action they should take.

GENEVA

(From Our Regular Correspondent)

Nov. 5, 1927.

An Erroneous Report of a Death

Last August, the Swiss lay press published a dramatic report of the death of the patient of a Geneva dentist as the result of an injection of procaine hydrochloride. The committee of the Swiss Odontologic Society looked into the matter and discovered that procaine was not injected by a dentist, but that another drug was injected by a physician. Dentist and doctor had the same name.

Venereal Disease Control

The Swiss Antivenereal Society has published tracts for the use of the sickness insurance service and for hotels and restaurants, with lectures in French and German. The lectures for army recruits have been developed. The society places antisyphilitic medication at the disposal of physicians for indigent patients living in the country and small towns. Lastly, the office of documentation keeps in touch with foreign associations, a contact which is also maintained by a delegate sitting in the directing committee of the International Union for Antisyphilitic Control.

Control of Narcotics

With the year 1926, normal functioning of the Swiss federal law controlling narcotics began. This new legislation, which enters into both national and international domains, entails delicate procedures. The law interferes with the manufacture of narcotics and with the business of those who trade in them; it likewise imposes on pharmacists and physicians certain inconvenient obligations. The law, however, is working satisfactorily in Switzerland.

Cocculus Indicus Used by Poachers

The Swiss Society of Pisciculture has requested the federal authorities to place cocculus indicus on the list of poisons which are not to be sold without special authorization. Cocculus indicus, and picrotoxine which is extracted from it, are highly toxic to both man and animals. Both are employed by poachers for catching fish, either as a mass made of the powdered shell or as a decoction mixed with the bait. A minute quantity of picrotoxine suffices to disable the fish. The police authorities of the canton of Fribourg have ordered that this product can be obtained only by those presenting certificates signed by competent authority.

Campaign Against Hyperthyroidism

A conference of physicians was held at Berne, November 4, in respect of the treatment and prevention of goiter. It was unanimously voted to continue the treatment with iodine begun five years ago and to extend it to other places. The results obtained with iodine have been favorable; after the first year of this treatment the development of goiter had already decreased 50 per cent.

Activities of Central Committee of Physicians

The Central Committee of the Swiss Federation of Physicians has decided to publish a circular, for distribution among premedical students, explaining the present oversupply of physicians. Accordingly, students may have no delusions in respect of the difficulties they will encounter in their future practice. The committee has also approved a memoir written by the Swiss Gynecological Society dealing with the articles concerning abortion which are being considered for the new federal penal code. This memoir is to be sent to the parliamentary commission now studying the code.

Medical Profession in Russia

In Russia, the situation of the medical profession is not particularly safe. The *Pravda*, a daily newspaper, publishes

the following items: At Samarkande, Dr. Mitles treated the children of a wine merchant. In spite of all his care, one of them died. The father and some of his relatives met the physician in the street and stabbed him to death. At Novosimbirsk, Dr. Taber Petrov was visited by the father of a little patient whom he was treating. "How is Sonia?" asked the doctor. "She is dead," replied the father, whereupon he split open the physician's head. At Karkov, the victim was a woman physician, Madam Esterman. A working man, Kotchetova by name, called on the physician because his child had died and shot her dead with a revolver. This act made Kotchetova very popular among his fellow citizens.

PARIS

(From Our Regular Correspondent)

Nov. 9, 1927.

Fever Therapy in the Treatment of General Paralysis

Professor Sicard has recently induced high temperatures in patients with general paralysis by injecting intravenously a culture of Ducrey's bacillus, grown on gelose and sterilized, which he calls "dmelcos." It constitutes an effective vaccine in the treatment of simple or soft chancre. The injection is followed, one or two hours later, by a severe chill, and, during the hours following the chill, the temperature rises to 39.5, 40 and 40.5 C. The patient then develops a profuse sweat, and the temperature returns rapidly to normal. The first injection enables one to test the susceptibility of the subject, which will determine whether the dose to be employed is 1, 0.5 or 0.25 cc. Experience has shown that these injections, repeated every two days, until several dozen have been given, have never been followed by any untoward effect such as albuminuria or azotemia. The antisyphilitic treatment is given concurrently; and by the same needle, which is left in the vein, 1 Gm. of arsphenamine (here tryparsamide) is injected. The injections are continued at the rate of 3 Gm. a week, or about 20 Gm. for a course of three months and 60 Gm. in a year. Sicard and his associates, Haguenau and Wallich, have brought about noteworthy ameliorations and long remissions in patients with general paralysis whom they have thus treated.

Meeting of the International Bureau of Public Hygiene

The usual autumnal session of the permanent committee of the International Bureau of Public Hygiene, which was attended by delegates from forty-six states, opened, November 7, at the headquarters of the bureau in Paris, under the chairmanship of M. O. Velghe, the Belgian delegate. These meetings are strictly private. Among the questions discussed were the approaching application of the international sanitary agreement of Paris of 1926, the participation of the Pan-American sanitary bureau of Washington and of the sanitary council of Egypt in the international notification service in sanitary matters, and the use of the radio for the needs of maritime sanitary police work. The committee will continue its studies on the best means of combating epidemic diseases throughout the world.

Development of the University City

The dedication of the new Belgian pavilion, reserved for Belgian students, located at the University City, took place this week. The nucleus of the University City, which is growing steadily, was the creation, through a legacy of M. Deutsch, a philanthropist, who acquired great wealth through his gasoline refineries, of a pavilion for French students, located in the outskirts of the capital, in the quiet section of Montrouge, which benefits from the pure air of Montsouris Park, and yet is not too far distant from the Latin Quarter, in which are the buildings of the Sorbonne, including those of the Faculté de médecine and the Faculté de droit. Three hundred young men and sixty young women are housed here in dormitories, where they obtain, at a moderate price, a comfortable room, good food, and the benefits to be derived from reading rooms, a library, tennis courts, and other games. After the war, Senator Honnorat conceived the idea of erecting these dormitories, taking advantage of the areas that were vacated by the demolition of the old fortifications of Paris. Senator Honnorat sought to introduce a plan by which foreign students would benefit by the same advantages as the French students, in being removed from the Latin Quarter, which had an unsavory reputation, though conditions were much exaggerated, and by which they would be brought together in national groups, which would diminish their isolation in the large city. The proposal was greeted with enthusiasm by a large number of countries, and national pavilions or dormitories, each reserved for the students of a particular nation, have been erected in the University City, in the vicinity of *la maison française*, as the dormitory of the French students is called. *La maison du Canada* has been completed and is open to students of Canada. *La maison de la Belgique* has just been opened. The pavilion of Argentina is almost completed. The corner-stone of the *la maison de la Grande-Bretagne* and that of *la maison du Japon* have been laid. The United States has selected the site for its dormitory and the architectural plans are being drawn. The concession for *la maison hollandaise*, to contain a hundred rooms, has just been signed. The dormitories of Czechoslovakia and of Brazil are in preparation.

The International Institute of Intellectual Cooperation

The administrative committee of the International Institute of Intellectual Cooperation, which was created in Paris three years ago and which deals with all international questions pertaining to the sciences and to belles-lettres, held a session, recently, in the Palais-Royal. The discussions dealt mainly with the protection of the original rights of scientists, inventors and writers by the enactment of international legislation.

A Mission to Combat Yellow Fever in Africa

Cases of yellow fever having occurred with considerable regularity, during the past year, throughout French West Africa, M. Lasnet, general medical inspector, soon will take over the management of the sanitary services of the colony. Likewise, at the request of M. Carde, the Pasteur Institute has placed Dr. Pettit, member of the Academy of Medicine, at the disposal of the governor general. Dr. Pettit will be at the head of a medical mission that is to make new researches on the origin of the disease and the mode of transmission.

Unjust Aspects of the Federal Tax on Physicians

The medical syndicates, in Paris particularly, have begun a campaign to bring about a modification of the conditions on which the federal tax on physicians called *"patente"* is based. This tax is calculated as is also that levied on other liberal professions of noncommercial character and is proportionate to the amount of rent paid. This has become absurd since the income tax has been introduced. A general practitioner occupying a modest apartment may have a greater income than many specialists whose rooms are luxuriously furnished. A more serious matter is that, since the war, rents have advanced enormously, as has everything else. The annual rent of a physician in moderate circumstances amounts today to 20,000 francs ($800). Nevertheless, the government treasury continues to levy a tax of one twelfth beginning with 4,000 francs. The medical syndicates have made, therefore, a formal demand that the tax of one twelfth shall not be applied unless the rent is above 15,000, or preferably 20,000, francs, and that, furthermore, an exemption of 500 francs rent be allowed for each adult child in the physician's family, residing in the apartment.

PRAGUE

(From Our Regular Correspondent)

Nov. 1, 1927.

Flour

On the initiative of the Masaryk Academy of Work of the Czechoslovak Republic, the first International Conference on Flour and Bread Manufacture took place in Prague, September 22-25. The need for such a conference has grown out of the fact that the trade balance of most of the European countries suffers because American flour is being imported in large quantities. This is going on in spite of the fact that the countries themselves are producers of flour. Foods made from American flour are more attractive because of the procedures which are common in the American milling industry and which are combated by the Czechoslovakian hygienists. Both of the points of view which have been described were defended at the conference. One party holds that it is futile to prohibit the use of improving procedures to domestic millers but at the same time to permit importation of flour which has been processed in another country. This argument convinced the majority of the delegates, who passed a resolution which recommends that governments which allow the importation of improved flour from foreign countries permit local producers to use the same procedures in order to protect them against foreign competition. This resolution was carried in spite of the protests of hygienists. It was decided to reconvene in Rome in 1929.

Venereal Disease Prophylaxis

Of late, private firms, especially pharmacists, have proposed automatic devices for the sale of preparations for prophylaxis against veneral diseases. The pharmacists have requested the Czechoslovakian Society for the Campaign against Venereal Diseases to sponsor such an undertaking and have promised to the society a portion of the profits. In the society, opinion on this question, was divided. Some argued that prophylaxis should not be neglected in the fight against venereal disease. Others said that public recommendation of prophylaxis in the name of a reputable organization would be analogous to the old system of reglementation. This measure was detrimental because the public thought that a prostitute who had been examined by health authorities would not transmit veneral disease. If prophylactic means should be recommended for wide use, the admonition as to its merely relative value would not be listened to. On this ground it was decided that the society could not sponsor the undertaking, although it will not oppose it if it is conducted in an inoffensive way.

Social Insurance

On the 1st of July, 1926, the new law concerning sickness, invalidity and old age insurance was put into effect. Since then many employers have complained that the cost of the system has become such a burden that it endangers competition in the foreign markets. The chief complaint came from the farmer employers. The employees have endeavored to preserve the advantages which the laborers have gained through the law. Another difficulty is that, when old age insurance was introduced, the fee for sickness insurance was reduced from 6 per cent of the wage to 5 per cent in order to make the added burden more tolerable to business. The insurance authorities maintain that this reduction has caused large deficits, which have to be covered by the reserve funds. As a compromise the government has prepared a bill which undoubtedly will be accepted. According to this bill some categories of employees are excluded from the benefits of insurance. Foreigners who are working in Czechoslovakia are excluded both from the sickness and from invalidity and old age insurance. Working persons under the age of 16 years are excluded from the invalidity and old age insurance. The same shall hold for seasonal laborers. The bill guarantees that farm hands shall be placed in the lowest fee categories. Also the bill introduces rigid control of the funds. The representation of employers in the directing boards of the insurance bodies has been strengthened. The bill will result in increased economy and consequently a probable smaller remuneration of insurance physicians. This bill makes it improbable that the insurance physicians can succeed in their demand for the free choice of physician.

Health Demonstrations

Public health demonstrations have been introduced into Czechoslovakia through the initiative of the International Health Board of the Rockefeller Foundation. Originally a small demonstration was given in a rural public health district, the chief problem of which was typhoid. Later on a demonstration was launched in a political district near Prague with a population of about 60,000 with important industrial problems. In this district public health nursing has been introduced for the first time in the country on a large scale. At the beginning the demonstration received the support of the foundation, but it is being continued from local funds. Lately two new demonstrations have been developed, also with the support of the foundation. One of them was started in a section of the city of Prague with the purpose of providing a lesson for the state institute of public health, which will have a school of hygiene attached. The sector of the city selected is near the institute. The second recent demonstration has been developed in a rural district of Moravia. Besides the demonstrations which have been started through the initiative of the foundation, new projects have been worked out locally. The ministry of health has appointed an official inspector of demonstrations from the staff of the state institute of public health. At the same time, rules and regulations for the development of similar demonstrations have been prepared. The chief stress in the regulations is laid on fitting the demonstration activities into the official health machinery of the territory.

Death of Thomayer

The father of the Czech school of internists, Prof. Joseph Thomayer, died in Prague, October 17. The majority of the professors of all branches of clinical medicine in the Czechoslovakian medical faculties obtained their clinical education under Professor Thomayer. He was born in 1853 in a small country village and obtained his degree in medicine in Prague in 1876. In 1902, after the death of Professor Eiselt, he became the chief of the clinic of internal diseases. Professor Thomayer early acquired knowledge of French and English and followed the literature of the western nations contrary to the custom of his time, which favored the German scientific literature. He visited almost the whole world, including the United States. His manual of internal medicine has become a standard text and reference book. The best known of his scientific papers are concerned with his clinical observations in neurology. His popular stories derived from his medical practice belong among the literary treasures of Czech literature. He preserved throughout life his close relationship to the fine arts. French, Russian, Swedish, Serbian and Polish scientific bodies bestowed on Professor Thomayer many honors for his achievements.

Venereal Diseases

From the statistics that have been published lately by the Czechoslovak army, it appears that the low figures that were obtained from the last reporting of venereal diseases in Czechoslovakia in February, 1926 (communicated in a previous letter), represented the minimum incidence which has been attained thus far. Since then there has been a recrudescence of venereal diseases in the country. This is being

corroborated by medical practitioners, especially by specialists in venereal diseases. The increase which was noted concerns gonorrhea and syphilis. Chancroid continues steadily its downward trend. With the fact in mind that the after-war decrease in venereal diseases coincided with a general slump in economic conditions in the country and that an increase in venereal disease appeared as soon as prosperity was embarked on and in spite of intensive antivenereal measures, the conclusion would seem warranted that economic conditions constitute the most important factor which determines the incidence of venereal diseases in a given country.

BERLIN

(From Our Regular Correspondent)

Nov. 12, 1927.

An Exposition on Human Nutrition

An exposition on human nutrition will be held in Berlin, from April 28 to Aug. 5, 1928. The exposition will have to do chiefly with the scientific and practical demonstration of a suitable mode of nutrition involving only a reasonable cost. According to the plan of the exposition as tentatively announced, the main departments of the exposition will comprise: (1) the basis of nutrition; (2) food products, the technic of food products, and the food products industry; (3) nutrition in practical life, and (4) education, instruction and literature pertaining to nutrition.

Department 1 will deal with the origination of food; man; and the physiology of nutrition. Department 2 will consider food products, articles of diet classed as luxuries, refreshment beverages, preservation and storage of food products, combating destructive pests, protection against destruction, and contamination of food products; kitchen management; the detection of food adulteration, and pure food legislation. Department 3 will comprise the feeding of the nations; the daily family diet; the nutrition of mother and child; unsuitable nutrition and the resulting manifestations; the care and feeding of masses of population; the diet of the sickroom; the diet kitchen, and the economic aspects of nutrition.

Death of Paul Zweifel

Paul Zweifel, formerly director of the Leipzig University Women's Hospital, has died at the age of 78. When 28 years old, he was appointed to a chair at the University of Erlangen, and in 1887 he became the successor of Credé at the University of Leipzig. He published a great many books and articles. He wrote a textbook on obstetrics, which passed through five printings. Instruments that he introduced have been widely used. In 1921, Zweifel was retired on reaching the age limit, but he continued his scientific studies. For Döderlein's Handbook of Obstetrics he revised the chapters on placenta praevia, rupture of the uterus, eclampsia, childbed fever, sudden death in pregnancy, childbirth, and the puerperium. In collaboration with Payr, he published the "Klinik der bösartigen Geschwülste," and prepared, for that work, "Die bösartigen Geschwülste der Gebärmutter" (1924-1925). More recently still, he wrote, in collaboration with his son Erwin, the "Grundriss der Gynäkologie."

Nicotine-Free and Nicotine-Poor Tobacco Products

Dr. Frank has been able to establish that the more recent denicotinizing procedures applied to tobacco are more effective than those formerly employed. The tobaccos treated according to the German patent procedure introduced by Sartig had an average nicotine content of 0.78 per cent, whereas ordinary tobacco contains considerably more than 1 per cent. These tobaccos and the cigars manufactured from them could not be rightfully designated as free from nicotine, though they are of low nicotine content. The flavor and the aroma were good in the more expensive brands, but the inferior brands had a somewhat flat taste [German says strawy taste]. Medium-priced cigarets that had been denicotinized by the same procedure had a nicotine content of 1.04 per cent, but their flavor was not up to standard. Sartig's procedure consists essentially in hanging up the tobacco to be treated in an airy, well lighted room or loft, so that it will be played on from all sides by the fresh air and will receive the full effect of the daylight. While hanging, it is sprinkled with salt-free water, as much water being applied as it will absorb without dripping. The sprinkling is repeated many times, over a long period.

Mortality Statistics of Berlin in 1925

Of the 45,651 persons who died in Berlin, in 1925, 11,292, or 24.7 per cent, had reached the age of 70. If the deaths are considered according to the ages attained, it will be noted that 4,271, or 9.3 per cent—a comparatively high proportion—occurred under 1 year of age. Of the latter, there were 1,043 deaths due to premature births, 601 to pneumonia, 428 to gastric and intestinal catarrh, and 305 to subnormal vitality at birth.

Among the various diseases causing death, malignant neoplasms occupy first place (5,935 deaths, or 13 per cent). Especially persons between 50 and 70 years of age succumbed to this disease; likewise of the 4,897 persons (10.7 per cent) who died from heart disease, almost half belonged to the same age groups (50 to 70). In 4,660 cases (10.2 per cent), cerebral hemorrhage was the cause of death, the persons affected having been, for the most part, past 70 years of age. In the fourth place stands tuberculosis of the respiratory organs, to which 4,335 persons (9.4 per cent) succumbed, of whom 1,262 were between 20 and 30 and 895 between 30 and 40 years of age. Arteriosclerosis was the cause of death in 3,688 cases. Diseases of the nervous system and of the digestive organs caused the deaths of 1,466 and 1,034 persons, respectively.

Of other causes of death, 1,587 persons ended their lives by shooting, hanging or drowning, by the ingestion of poisons, or by poisoning with gas. The motives for suicide were: a sense of weariness and dissatisfaction with life, incurable bodily disease, and mental and nervous diseases. Accidents and other applications of force caused the deaths of 1,328 persons.

Marriages

RAYMOND ROBINSON SIMMONS, Winston-Salem, N. C., to Miss Reine Louise Musgrave, Norfolk, Va., October 25.

CHARLES LLOYD MOORE, Charlottesville, Va., to Miss Margaretta Watmough Wise of Richmond, November 2.

GEORGE W. HARTMAN, San Francisco, to Miss Trudie Elizabeth Zempelburg of Colton, Calif., November 17.

LAWTHER JACKSON WHITEHEAD to Mrs. Eleanor Enslow Kable, both of Richmond, Va., October 25.

SAVALA EUSTACE GUNN, Hopewell, Va., to Miss Virginia Blanche Leonard of Richmond, October 8.

FRANCIS PATTON TWINEM, New York, to Miss Elizabeth Brower of Hackensack, N. J., October 2.

FRANK WARING LEWIS, JR., Richmond, Va., to Miss Patsy Wickline of Clifton Forge, October 6.

JAMES GORDON BOISSEAU, Richmond, Va., to Miss Gladys Crowder of Covington, October 29.

JOSEPH H. LUCINIAN, Miami, Fla., to Miss Nevart Casparian of Baltimore, September 17.

CLARENCE C. HOKE, Tulsa, Okla., to Miss Jane Mitts at South Bend, Ind., October 24.

HENRY T. GARRISS, Richmond, Va., to Miss Jean Sharpless of Hazleton, Pa., October 20.

EDWARD L. BOONE, Branchville, Va., to Miss Nancy Bailey of Scottsburg, October 1.

LEROY E. ELLISON, Auburn, Ill., to Miss Rose B. King, at St. Louis, October 19.

Deaths

William Gilman Thompson ⊕ New York; Medical Department of Columbia College, New York, 1881; emeritus professor of medicine, Cornell University Medical College; consulting physician to the Bellevue Hospital and consulting physician and past president of the Reconstruction Hospital; for many years on the staffs of the Presbyterian and New York hospitals; author of "A Text Book of Practical Medicine"; editor of a system of medicine in 1897; for seventeen years trustee of the New York Academy of Medicine; aged 70; died, October 27, of heart disease.

George Augustus MacQueen ⊕ Keyser, W. Va.; Baltimore Medical College, 1906; past president of the West Virginia State Medical Association; formerly mayor of Charleston; served during the World War; proprietor of the Hoffman Hospital, Keyser, and formerly proprietor of the Kanawha Valley Hospital, Charleston; aged 48; died, September 17, at the home of his parents in St. Albans, of acute myocarditis.

Clarence A. Tillotson, Dinuba, Calif.; Medical Department of the University of the City of New York, 1891; member of the California Medical Association; served during the World War; formerly on the staff of the Dinuba Sanitarium; aged 60; died, October 26, at the University of California Hospital, San Francisco, of hemorrhage, following an operation for hypertrophy of the prostate.

Alfred E. H. Maerker, Napoleon, Ohio; Medical Department of the University of Wooster, Cleveland, 1882; Medico-Chirurgical College of Philadelphia, 1891; member of the Ohio State Medical Association; formerly bank president; aged 70; died suddenly, in October, of heart disease.

Ashman Henry Vandivert ⊕ Bethany, Mo.; University of Michigan Medical School, Ann Arbor, 1877; for four years superintendent of State Hospital, number 2, St. Joseph; for fifteen years president of the school board; aged 74; died, October 19, at Seattle, of cerebral hemorrhage.

Martin Rist Chase ⊕ Chicago; Northwestern University Medical School, Chicago, 1912; assistant professor of medicine at his alma mater; on the staffs of the Cook County Hospital and the Wesley Memorial Hospital, where he died, November 2, of lobar pneumonia, aged 41.

Frederick Charles Parker, Seattle; University of Illinois College of Medicine, Chicago, 1910; member of the Washington State Medical Association; formerly on the staffs of the King County and the St. Luke's hospitals; aged 57; died, October 5, of carcinoma of the rectum.

George Washington Brush, Brooklyn; Long Island College Hospital, Brooklyn, 1876; Civil War veteran; formerly state senator; at one time on the staffs of the Long Island College Hospital and the Bushwick Hospital; aged 85; died, November 18, of chronic myocarditis.

Willard M. Hilton, Waverly, N. Y.; New York Homeopathic Medical College, 1877; member of the Medical Society of the State of New York; aged 77; died, October 27, at the Robert Packer Hospital, Sayre, Pa., following an operation for carcinoma of the rectum.

Henry Francis Wagner, San Francisco; University of California Medical School, San Francisco, 1922; on the staffs of the Mary's Help Hospital and the University of California Hospital, where he died, October 24, aged 31, of scarlet fever and Ludwig's angina.

William C. Lockhart, Dayton, Ala.; University of Alabama School of Medicine, Tuscaloosa, 1889; member of the Medical Association of the State of Alabama; aged 67; died, April 4, at the Vaughan Memorial Hospital, Selma, of gallbladder disease.

Eugene W. Heyde, Parkton, Md.; University of Maryland School of Medicine, Baltimore, 1892; member of the Medical and Chirurgical Faculty of Maryland; aged 57; died, November 14, at the Springfield State Hospital, Sykesville, of lobar pneumonia.

Elias Barg ⊕ Montezuma, Iowa; University of Berlin, Germany, 1903; past president of the Poweshiek County Medical Society; aged 49; died, October 29, at the Methodist Hospital, Des Moines, following an operation for appendicitis.

John Howard Seipel ⊕ Pittsburgh; University of Pittsburgh School of Medicine, 1912; served during the World War; on the staff of the Mercy Hospital, where he died, October 25, of epidemic encephalitis, aged 38.

Albert Macon Smith, University, Va.; University of Virginia Department of Medicine, Charlottesville, 1925; intern, University of California Hospital; aged 26; died, October 26, of injuries received in a motorcycle accident.

John Palmer Keller ⊕ Douglas, Wyo.; Illinois Medical College, Chicago, 1907; formerly on the staff of the Douglas Hospital; aged 51; was killed, October 13, when the automobile in which he was driving overturned.

Henry Samuel Brown, Jr., Columbiana, Ohio; Harvard University Medical School, Boston, 1927; aged 29; died, May 20, at the Herman Kiefer Hospital, Detroit, of complications following scarlet fever.

Joseph T. White ⊕ Atlantic City, N. J.; Baltimore Medical College, 1903; served during the World War; aged 52; died, November 14, at the Atlantic City Hospital, of cirrhosis of the liver and diabetes mellitus.

Gaetano Conti, Pittsburgh; University of Naples, Italy, 1894; member of the Medical Society of the State of Pennsylvania; aged 59; died, October 25, at the Mercy Hospital, of cerebral hemorrhage.

Robert Lester Crum ⊕ Los Angeles; St. Louis University School of Medicine, 1911; on the staffs of St. Vincent's and the Los Angeles General hospitals; aged 46; died, October 26, of cerebral hemorrhage.

Atwood P. Latham, Elizabethtown, Ky.; Southwestern Homeopathic Medical College and Hospital, Louisville, 1900; Spanish-American War veteran; aged 58; died, October 26, of heart disease.

Edward Stillman May, Washington, D. C.; Albany (N. Y.) Medical College, 1866; Civil War veteran; formerly coroner of Steuben County, N. Y.; aged 82; died, September 1, of senile debility.

John Morgan Phillips, Benton, Ark.; University of Arkansas Medical Department, Little Rock, 1891; member of the Arkansas Medical Society; aged 63; died, October 19, of paralysis.

John L. Jeffress ⊕ Ada, Okla.; Medical Department of the Tulane University of Louisiana, New Orleans, 1895; aged 58; died, August 23, of injuries received in an automobile accident.

William M. Denman, West Unity, Ohio; Starling Medical College, Columbus, 1870; formerly state senator and member of the state legislature; aged 82; died in October, of senility.

John David McIntosh, Rockland, Mass.; Bellevue Hospital Medical College, New York, 1884; aged 67; died recently, at the Goddard Hospital, Brockton, of lobar pneumonia.

Nathan D. Yale, Deerfield, Mich.; University of Michigan Medical School, Ann Arbor, 1872; aged 84; died, recently, at the State Hospital, Kalamazoo, of arteriosclerosis.

William Alexander Hume ⊕ Forest Hills, N. Y.; Medical Department of Columbia College, New York, 1880; aged 69; died, October 19, of septicemia, following tonsillitis.

James Brooks, Plains, Pa.; Chicago Medical College, 1877; member of the Medical Society of the State of Pennsylvania; aged 70; died, October 18, following a long illness.

Robert Sterling Porter, Roanoke, Va.; Vanderbilt University School of Medicine, Nashville, 1907; aged 45; died, August 7, of myocarditis and chronic cholecystitis.

Orville Wesley Yeargain, San Francisco; Willamette University Medical Department, Salem, Ore., 1891; aged 62; died, May 14, of pulmonary edema and paralysis.

Richard B. Fishburn, Leesburg, Va.; Kentucky School of Medicine, Louisville, 1876; aged 76; died, September 14, at Staunton, of arteriosclerosis and mitral stenosis.

William Fred Wade ⊕ Good Pine, La.; Memphis (Tenn.) Hospital Medical College, 1907; aged 47; died, October 17, of cerebral hemorrhage.

Amy Florence Temple, Oakland, Calif.; California Eclectic Medical College, Los Angeles, 1899; aged 63; died, March 30, of heart disease.

Edward Frank Dunlap, Los Angeles; Marion-Sims College of Medicine, St. Louis, 1892; aged 67; died, April 22, of heart disease.

Frederick Norris Pritchard, Detroit; Jefferson Medical College of Philadelphia, 1904; aged 47; died, October 19, of heart disease.

William Donaldson Hart ⊕ Almont, Mich.; Detroit Homeopathic College, 1909; aged 43; died, October 9, of tuberculosis of the lungs.

O. L. Hollar, Hickory, N. C.; Baltimore Medical College, 1892; aged 55; died, October 15, of cerebral hemorrhage.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

MAGIC MATERIA MEDICA

From the town of Glenwood Springs, Colorado, comes a new therapeutic marvel, with the somewhat intriguing name, "Magic Materia Medica." It is put on the market by one C. E. Krueger, who calls himself a chemist. According to Krueger, he discovered this product when he was assaying "a certain rock," and he declares that, so far, he has "not been able to learn what this healing substance is." Mr. Krueger does emphasize, however, that his preparation contains just enough radium to be effective.

But, whatever limitations Mr. Krueger exhibits regarding the composition of his product, he has high and lofty ideas of its therapeutic value. He quotes Dr. Royal S. Copeland as saying: "It has wonderful healing powers." If the claims made by Mr. Krueger are even ten per cent accurate, Dr. Copeland was eminently conservative. First of all, Mr. Krueger declares that Magic Materia Medica has "cured cataract"; then, too, it is "an excellent eye wash," "heals granulated eyelids and strengthens the eyes." For catarrh and hay-fever, one should take a teaspoonful twice a day, wet the nose and nostrils with the solution, and "sniff it up." For coughs, take one-half teaspoonful.

But this is only the beginning. Mr. Krueger assures us: "It has cured Rheumatism, Neuralgia, Lumbago, Eczema, Diphtheria, Pleurisy, Goiter, Boils, Pimples, Stomach, Intestinal and Kidney trouble." Have you "cuts, bruises or old sores?" Wet the parts with Magic Materia Medica. It will, according to Mr. Krueger, stop the bleeding and pain immediately and there will be no inflammation or pus and it will leave no scar. It is also excellent for burns, sunburn and insect bites. It will remove corns and calluses. For pyorrhea, one should apply Magic Materia Medica to the teeth and gums, while, for sore throat, take a teaspoonful twice a day and rub the neck and chest with the solution. For piles, apply the solution several times and take a teaspoonful. Have you "birthmarks, livermarks, moles, etc.?" "Apply solution until removed."

But, so far, we have merely dealt with the small things that Magic Materia Medica will cure—like cataract and diphtheria. "Most important and most beneficial," as Mr. Krueger says, Magic Materia Medica will cure cancer! All that is necessary is to take a teaspoonful morning and night, and "wet the sore places with the solution until healed." Too, it has cured tuberculosis. Here, again, the sufferer takes a teaspoonful twice a day and rubs the stuff on his chest, throat and back. As Mr. Krueger enthusiastically exclaims: "It seems there is no limit to this remedy; it heals any ills of the human body."

There are testimonials, of course. Mr. L. H. Webster, a railroad man of Salida, Colorado, had a cancer of the stomach, or, possibly, it was an ulcer—Mr. Krueger does not seem to be quite sure which. At any rate, the doctors at the Salida hospital would not allow Mr. Webster to take any Magic Materia Medica for his cancer, or ulcer, with the result that after two months' suffering, he was told that he had only five or ten days more to live. Then Mr. Webster began taking Krueger's Magic Materia Medica, and, in twenty-two days, he had gained sixteen pounds and is now back on his job on the Denver and Rio Grande Western Railroad.

Equally marvelous was the case of Mrs. A. R. Williams of Carbondale, a sixty-year-old woman with cancer of the stomach. She also, it seems, went to the hospital at Salida, and here, according to Mr. Krueger, is what happened:

"When they opened her, the doctor shook his head and said: 'Madam, your cancer is as big as a baseball; if I cut it out, you will die. But there is a man in Glenwood Springs who has a medicine that may help you.' He wanted her to die on my hands! Her son came and took 12 vials. In ten days he called for 12 more, and told me his mother was greatly improved. In four weeks she was so well that she fed her chickens and worked in her garden. After six weeks, a lady came to my office and said: 'I am Mrs. Williams. I came to thank you for the wonderful cure.' Her appearance proved it — red cheeks, lively as a young girl, and can eat anything she wants."

In order that Mr. Krueger and others may no longer be in ignorance of the composition of his Magic Materia Medica, we publish a report of the A. M. A. Chemical Laboratory on this marvel:

LABORATORY REPORT

"Seven original vials labeled 'Magic Materia Medica' (C.E.K.) were submitted to the A. M. A. Chemical Laboratory for analysis. Each vial contained about 10 cc. (⅓ oz.) of a colorless liquid. Qualitative tests indicated the presence of calcium (Ca^{++}), chloride (Cl^{-}) and nitrate (NO_3^{-}), and traces of iodide (I^{-}) and sodium (Na^{+}). Alkaloids, chlorates and arsenic were not found. Quantitative determinations were as follows:

Specific gravity	1.0794
Total solids	12.73 per cent
Sulphated ash	10.05 per cent
Calcium (Ca^{++})	3.07 per cent
Chloride (Cl^{+-})	3.23 per cent
Nitrate (NO_3^{-})	3.54 per cent

"From the foregoing, it is concluded that 'Magic Materia Medica' is essentially a 10 per cent solution of a mixture of approximately equal weights of anhydrous calcium nitrate ($Ca(NO_3)_2$) and anhydrous calcium chloride ($CaCl_2$), plus a very small amount of sodium iodide (NaI). According to a circular, one teaspoonful of the preparation twice a day is recommended for the treatment of catarrh or cancer; one teaspoonful is equivalent, therefore, to 0.2 Gm. (3 grains) of calcium nitrate ($Ca(NO_3)_2$) and 0.2 Gm. (3 grains) of calcium chloride ($CaCl_2$), plus a dash of sodium iodide (NaI)."

THE VIAVI FAKE

For years there has been exploited throughout the United States a piece of quackery known as "Viavi." The business was founded by two brothers, Messrs. H. and H. E. Law of San Francisco.

Viavi is not the name of a single preparation; it is a generic name given to a long list of nostrums put out by the Viavi Company. Practically all of the preparations are sold for the alleged alleviation and cure of diseases peculiar to women. There are "Viavi Capsules," "Viavi Cerate," "Viavi Liquid," etc. The basis of most of the Viavi preparations, so far as analysis has been made of them, seems to be golden seal.

The Viavi concern does little newspaper advertising. The business is carried on by means of agents and, once in a while, some branch agency will insert small advertisements. Some years ago there was an exception to this rule. The *California State Journal of Medicine* for April, 1907, published a detailed exposé of the Viavi quackery, and, at that time, two San Francisco newspapers made some reference to Viavi. Immediately, large advertisements appeared in all the San Francisco newspapers. No further newspaper criticism appeared, and one of the papers that had referred to the medical article printed a pleasant and complimentary little write-up about the Laws and their enterprise.

The present reference to Viavi is prompted by a letter just received from a well known physician in the Middle West. He writes that he has just been called to see a young woman, aged 27, the mother of an eight-year-old child. He has known her for many years and has been the attending physician of the family. He was called out suddenly to see the woman on account of a severe uterine hemorrhage. On examination, he found unmistakable evidence of cervical carcinoma of several months' standing. The history of the case was that the young woman, some four months previously, began to lose weight, had severe pelvic pains, backache, discharge, etc., and her husband told her to go to the family physician for a complete examination. A neighbor, however, advised her to see the local Viavi agent first, which she did. From the agent she got two bottles of medicine, one costing $9.50 and the other $3.50. The agent sent the woman's "symptoms" to the Viavi Chicago branch headquarters and there came back a diagnosis by mail that the condition was

probably a "cyst," which would require several months' Viavi treatment to absorb!

After some weeks of treatment with no improvement, the Viavi fakers sent a woman physician, who made a vaginal examination and pronounced it cancer. She recommended that the sufferer go to Detroit and take the Koch treatment! Before the poor woman could decide what to do, the lesion ulcerated into an artery, with a serious hemorrhage. As the family physician writes: "Four months ago there might have been a chance to save the life of this young mother; today, the case is practically hopeless."

Twenty years ago, the *California State Journal of Medicine*, in bringing to a close its article on the Law brothers and their quackery, asked a question of the business men of San Francisco, that we repeat: "Gentlemen, do you or do you not approve of the manner of the money-gathering of the Law brothers?"

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ROENTGEN-RAY TECHNIC

To the Editor:—1. Please publish the technic for roentgen-ray treatment of uterine fibroid and also menorrhagia and metrorrhagia when no definite cause can be determined. Give technic using aluminum filter and also copper filter with a machine of a maximum of 9 or 10 inch spark gap (160 peak kilovolts). 2. Can cancer of the breast and the cervix be treated with any degree of success with a 10 inch machine? If so, give technic. 3. What aluminum filter is equivalent to a filter made of 0.25 mm. of copper and 1 mm. of aluminum? 4. What is the maximum spark that is safe to use with a broad focus universal Coolidge tube with 5 milliamperes? Please do not publish my name.

M.D., Georgia.

ANSWER.—1. No particular or specific roentgen-ray formula for these conditions can be recommended. Different roentgenologists use various combinations of technic with equal success. The formula here given is reported as successful over a period of several years in a large percentage of cases treated. Other combinations and variants are also possible and will be advocated by various roentgenologists.

For small to medium sized fibromas of the uterus, the following formula is useful:

Using a 9 inch sphere spark gap, which is equivalent to approximately 130 kilovolts (Standards of A. I. E. E.) and with the roentgen-ray tube placed 30 cm. target to skin distance and employing a filter of 6 mm. of aluminum, 110 miliampere minutes will be the maximum amount of roentgen ray that should be given over any one skin area. Using 5 milliamperes, this will be twenty-one minutes for a slight erythema skin dose; but it is advisable to give a little less than the full dose at one session. At 38 cm. target-skin distance, 1½ times this amount will approximate the same result, while 2¾ times the amount can be given at a distance of 50 cm.

In the treatment of uterine fibroids, four ports of entry may be used, two anteriorly, to right and left of the median line and two posteriorly, also to right and left of the median line, always directing the central axis of the roentgen-ray beam to the center of the pelvis and, presumably, to the center of the tumor. These four areas are treated in sequence, a ¾ to ⅞ erythema skin dose, that is, from fifteen to eighteen minutes at 30 cm. target-skin distance, being used, one area each week and the cycle being repeated once, making eight sessions in all. Thus the same area receives a second exposure, four weeks after the first exposure and the entire treatment covers a period of eight weeks. These may be given at four day intervals, thus shortening the elapsed time. Small fibroids, from 5 to 7 cm. in size, often disappear several weeks after such a radiation dose. Fibroids of larger size will require a second series. Some large fibroids require three or more series and may have to be irradiated through additional portals, i. e., three or four anteriorly and posteriorly, care being taken not to overlap the skin areas irradiated. In small patients, one area anteriorly and one posteriorly, both centering on the median line, can be given with success.

The roentgen-ray formulas for uterine fibroid, menorrhagia and metrorrhagia are similar, differing principally in the number of applications, fewer being needed and cross-firing not being necessary in the latter two conditions, a second series which should be given after an interval of from six to eight weeks.

At a 10 inch spark gap, which is equivalent to 141 kilovolts (A. I. E. E.), the same factors of milliamperage, target-skin distance and filter require a shortening of the exposure time to 100 milliampere minutes for an erythema dose. At 160 kilovolts it should be still further reduced to approximately 80 milliamperage minutes of exposure.

With a copper filter of 0.25 mm. plus 1 mm. of aluminum, all factors as given in the preceding are practically the same. At a greater thickness of copper, the exposure time required to produce the desired results at 130 kilovolts becomes too great for practical application and is offset only by kilovoltages much higher than that of a 9 or 9½ inch gap.

2. In cancer of the breast the technical possibility of successful use of a 10 inch (140 kilovolts) potential is equal to that of a 16 inch (200 kilovolts) sphere gap. Theoretically, the 140 kilovolts is superior to the more penetrating ray in the treatment of this disease. Some roentgenologists successfully treat this lesion with a 100 kilovolt apparatus. There are others who prefer 120 kilovolt radiation. In breast carcinoma one may use the following formula, using 140 kilovolts, 5 milliamperes through a 6 mm. aluminum filter at 38 cm. distance over the entire breast area, eighteen minutes exposure at seven day intervals being given, six times for a complete series. It is best to include the supraclavicular and axillary regions. Some advocate multiple areas of radiation, dividing the breast area into halves or quarters. The therapeutic results are approximately the same. It is advisable to treat the axillary area separately. Cross-firing through the scapular area is the routine of some roentgenotherapists. It is well to remember that with multiple areas there is danger of overlapping and subsequent burn. Many have discontinued the posterior portal exposure area because of severe pleuritis and serious pleural thickening, which has occurred in a small percentage of cases, principally under higher voltage radiation.

In cancer of the cervix, radium applied directly to the lesion is superior to roentgen-ray therapy for local action; deep roentgen-ray therapy (200 kilovolts) in conjunction with radium application is useful in irradiating the surrounding glandular structures not reached by the radium; at 140 kilovolts, a longer exposure is necessary.

3. Six millimeters of aluminum has about the same filtering value as has 0.25 mm. of copper plus 1 mm. of aluminum.

4. Ten inch spark gap at 5 milliamperes continuously.

DEVICES FOR HEARING—ZINC IONIZATION

To the Editor:—1. Are mechanical appliances of value in the treatment of deafness, and for what types? 2. Is "zinc ionization" of value in chronic suppurative otitis media? Kindly omit name.

M.D., Illinois.

ANSWER.—1. In Queries and Minor Notes (THE JOURNAL, July 25, 1925, p. 290) appeared an item entitled "Zund-Burguet Electrophonoide Method for Deafness," in which this instrument is explained. It was described by Cathcart in the *Lancet* (**1**:968 [May 9] 1925), and Cathcart's article was abstracted in THE JOURNAL, June 13, 1925, p. 1878, as follows:

> Cathcart asserts that his results in 100 cases show that this method of treatment, when properly carried out, affords the most substantial advance in the treatment of chronic progressive deafness of recent years, and that it deserves more serious consideration from otologists than it has hitherto received. Of the total number of cases, 68 per cent have definitely improved after treatment. These comprise 81 per cent of the cases of nerve deafness, 67 per cent of the cases of chronic otitis media, and 55 per cent of the cases of otosclerosis. As regards tinnitus, this treatment not only alleviates it but often causes it to disappear completely.

Unfortunately, the manufacturer of the Electrophonoide is not named either in the item under Queries and Minor Notes or in the abstract. The developer is Zund-Burguet of Paris.

In Queries and Minor Notes (Oct. 17, 1925, p. 1243) appeared an item entitled "The Audition Device for Hearing" in which a device manufactured by the Audition Corporation, Wilson Building, Hoboken, N. J., was mentioned. It was said that it might be of value to some persons but probably would be of only temporary benefit.

In Queries and Minor Notes (Dec. 12, 1925, p. 1909), in an item on "Devices to Aid Hearing," various devices were discussed. Briefly, it was stated that, as a rule, small apparatus for insertion in the external auditory canal are not helpful and that a hearing tube is of great assistance but cumbersome. The types of apparatus activated by the electric current were

favorably commented on—specifically, the Vactuphone was mentioned. Attention was called, also, to a device which the Western Electric Company of New York was working on at the time. It was said that, in general, electrical devices are useful in cases in which conduction is interfered with, but not in cases in which the condition is due to nerve deafness.

2. Treatment by ionization of chronic suppurative otitis media has been reported on favorably to some extent. W. E. Crosbie (*Brit. M. J.* **1**:918 [May 21] 1927), in an article entitled "Zinc Ionization in the Treatment of Suppurative Otitis Media," has published a table of which the totals are as follows:

Total	Cured	Left Hospital	Referred for Operation	Still Under Treatment
318	258	24	39	36

T. B. Jobson, in an article entitled "Suppurative Otitis Media Treated by Zinc Ionization" (*Brit. M. J.* **1**:371 [March 1] 1924, describes fifty cases of suppurative otitis media with fifty-seven suppurating ears. Forty-five ears were ionized and twelve not ionized. As a result of treatment by ionization, twenty-nine of the forty-five ears were reported as cured, thirteen as not cured and three as unknown. Of the twenty-nine cured, twenty-seven were still dry at the time of report, but two had relapsed.

TABLET CONTAINING QUINIDINE

To the Editor:—I am having trouble with a new tablet which I am having made up containing quinidine sulphate. The formula follows:

Quinidine sulphate	gr. ii
Tr. digitalis	♏ ii
Tr. strophanthus	♏ ii
Nitroglycerin	gr. 1/100

If I give three or four such tablets in twenty-four hours in many of my selected heart cases, I find they are so laxative that I have to cut the dose to one or two tablets in twenty-four hours. Does quinidine itself have any direct action on the bowel? If not, what is the cause of the laxative effect of the combination? Kindly omit name and address.

M.D., New York.

ANSWER.—Strophanthus is as notorious for its tendency to produce diarrhea as is digitalis for its nauseating effect, or glyceryl trinitrate for its liability to induce headache. Reduction in the dose of strophanthus will probably overcome the trouble. The desirability of a fixed combination of this kind is most questionable; and the undesired appearance of the diarrhea is merely one of the evidences of this.

TUBERCLE BACILLI — ROENTGEN-RAY DIAGNOSIS OF TUBERCULOSIS

To the Editor:—1. Is it possible to determine the virulence of different strains of tubercle bacilli from different patients? 2. What is the best technic to use in the diagnosis of intestinal tuberculosis; that is, the roentgen-ray diagnosis?

H. F. GAMMONS, M.D., Booneville, Ark.

ANSWER.—1. It was not long after the discovery of the tubercle bacillus that the possibility of a difference in virulence between strains seemed possible, if not probable. The separation of the avian type in 1885 by Nocard, as well as the discovery of a large number of "para tubercle bacilli" by various others seemed to point in that direction. Nevertheless, these facts, as well as Theobald Smith's discovery of the bovine type in 1896, have tended to show "types" rather than "strains"; and while there is a vast difference in the virulence of these "types," there is yet little proof of a difference between the various strains of the true human type. It is true that the bovine type is virulent for human beings and must be reckoned with in tuberculosis work, yet its virulence is quite different in quality and quantity for different animals, showing a high virulence for bovines and certain other animals, especially rabbits. Accordingly, a differential method of separating out the bovine type was reported by Park in 1901. Quite recently, however, Griffith of England has apparently shown that, instead of a distinct bovine type corresponding to Smith's original description, there is an unbroken series of atypical strains that blend from the typical bovine into the human type. It has raised the old question of transmutation of the one type into the other—whether there are two types or one mammalian type having two strains possessing different adaptive characteristics. Numerous investigators have shown that the tubercle bacillus undergoes "dissociation," "regeneration" and "degeneration" manifested by rough colonies or various granular and coccoid forms. Recent work by Petroff and associates seems to show that every strain of tubercle bacillus possesses at least two types corresponding to the R and S types of other bacteria. Sweany has found strains from individual granules that seemed to have undergone degeneration into semiacid fast and nonacid fast "diphthoids" of low virulence, but capable of regaining virulence on guinea-pig passage. It is possible that in each patient there exist many forms possessing degrees of virulence differing from time to time and from host to host. There seems to be good reason to suspect that in a healing tuberculosis there is a different grade of virulence than in a rapidly progressing tuberculosis. With our present means of testing virulence by using mass cultures in guinea-pigs, however, little difference can be found in so-called human strains. This is especially true so far as prognostic value is concerned. The best evidence from this standpoint is from the host alone. Corper found little difference in more than a hundred human strains when small doses were tested in guinea-pigs as the test animal. It is possible that a more refined technic may ultimately establish shades of virulence that have heretofore been impossible, but at present such methods do not exist.

2. The roentgen-ray shadow features of intestinal tuberculosis consist of the presence of areas of incomplete filling of the colon at the site of the tuberculous pathologic changes. The tissue changes are usually in the form of ulcerations of hypertrophied bowel wall, resulting in an encroachment on its lumen of the bowel. Thus, there is a filling defect. This defect, however, is not specific, as there are other lesions in which local increases in the mucosa and underlying portions of the bowel wall occur. Nontuberculous lesions of the bowel may result in similar shadow defects or narrowing. Certain writers on this subject point out a constant feature in intestinal tuberculosis, in that the opaque material does not stop or rest at the tuberculous lesions. Thus the tuberculous areas are free from opaque shadows. The ingested opaque meal, as given and administered in ordinary gastro-intestinal examinations, is often sufficient. At other times the barium clysma must be resorted to in the visualization of the bowel lumen.

TREATMENT OF RECURRENT ERYSIPELAS

To the Editor:—The local poster commissioner (a Chinese) suffers from recurrent attacks of erysipelas of the leg. In the past five years there have been five attacks, all in late July except one, which occurred in midwinter. Aside from this there are no other evidences of its being an allergic phenomenon, and the attacks are in every way typical of erysipelas. They have occurred in widely different parts of China. What is the status of specific vaccine prophylaxis in recurrent erysipelas? Please omit name.

J. B. D.

ANSWER.—Weaver and Boughton (*J. Infec. Dis.* **5**:589, 1908) described an interesting case of chronic erysipelas of the face with recurring acute attacks in which the injections of homologous streptococci, killed by suspension in 25 per cent galactose solution, were followed by perfect recovery. Since then Birkhaug has developed an effective antitoxic serum treatment for erysipelas. The use of antitoxic serum as early as possible in a recurrent attack of erysipelas might, of course, prove to be of value also in preventing further attacks.

PNEUMOTHORAX FOR TUBERCULOSIS

To the Editor:—What is the consensus among those best versed in tuberculosis of the operation for collapsing the affected lung and thereby putting it at rest? Please omit name.

M.D., Wisconsin.

ANSWER.—Artificial pneumothorax has done more for the tuberculous patient than any other measure of treatment since the adoption of the rest cure. It has been characterized as the most important measure in antituberculosis therapy and has been approved by all specialists in tuberculosis. It is to be prescribed judiciously, with full regard to its limitations, and with recognition of possible dangers. Probably selected cases and a good understanding of technic give excellent results, often when the case seems hopeless. In this country, the mortality has been low.

EFFECTS OF ALCOHOL ON THE HAIR

To the Editor:—A woman, aged 36, has been using alcohol on her hair for the last six months, instead of soap and water. She believes that it is the cause of the sudden blanching of her hair. Is it possible that alcohol or any drug may produce canities? Please omit my name.

M.D., Montana.

ANSWER.—There is apparently no ground whatever for the belief that the use of alcohol on the hair can produce either gradual or sudden grayness.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 10-13. Sec., Dr. S. W. Welch, 519 Dexter Ave., Montgomery.

COLORADO: Denver, Jan. 3. Sec., Dr. Philip Work, 324 Metropolitan Bldg., Denver.

DELAWARE: Wilmington, Dec. 13-15. Sec., Reg. Bd., Dr. Henry W. Briggs, Wilmington. Sec., Homeo. Bd., Dr. Henry W. Briggs.

DISTRICT OF COLUMBIA: Washington, Jan. 10. Sec., Dr. E. P. Copeland, 1801 Eye St., Washington.

HAWAII: Honolulu, Jan. 10-13. Sec., Dr. James A. Morgan, Young Bldg., Honolulu.

ILLINOIS: Chicago, Jan. 10-12. Supt., Mr. V. C. Michels, Springfield.

KENTUCKY: Louisville, Dec. 6. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, Dec. 8-10. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bldg., New Orleans.

MARYLAND: Baltimore, Dec. 13-16. Sec., Dr. Henry M. Fitzhugh, Baltimore. Sec., Homeo. Bd., Dr. J. S. Garrison, Baltimore.

MINNESOTA: Minneapolis, Jan. 17-19. Sec., Reg. Bd., Dr. A. E. Comstock, 636 Lowry Bldg., St. Paul. Basic Science Bd., Jan. 3. Sec., Dr. E. T. Bell, U. of Minnesota.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 24-27. Sec., Dr. H. Rypins, Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, Jan. 3-6. Sec., Dr. G. M. Williamson, Grand Forks.

OHIO: Columbus, Dec. 7-9. Sec., Dr. H. M. Platter, Columbus.

OREGON: Portland, Jan. 3-5. Sec., Dr. M. K. Hall, 816 Pittick Bldg., Portland.

RHODE ISLAND: Providence, Jan. 5-6. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 17. Sec., Dr. H. R. Kenaston, Bonesteel.

VIRGINIA: Richmond, Dec. 6-9. Sec., Dr. J. W. Preston, Roanoke.

WASHINGTON: Seattle, Jan. 16. Dir., Reg. Bd., Mr. Chas. R. Maybury, Olympia. Dir., Basic Science Bd., Mr. Chas. R. Maybury, Olympia.

WISCONSIN: Madison, Jan. 10-12. Sec., Reg. Bd., Dr. R. E. Flynn, 315 State Bank Bldg., La Crosse. Sec., Basic Science Board, Prof. M. F. Guyer, U. of Wisconsin.

Illinois June Examination

Mr. V. C. Michels, superintendent of registration of the Illinois Department of Registration and Education, reports the written and practical examination held at Chicago, June 28-30, 1927. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Of the 199 candidates examined, 178 passed and 21 failed. Twenty candidates were licensed by reciprocity and 6 were licensed by endorsement of their credentials. The following colleges were represented:

PASSED — College	Year Grad.	Per Cent
Chicago Medical School	(1926) 77, (1927) 75, 75, 75, 76, 76, 76, 76, 77, 77, 78, 80, 80, 81, 82, 83	
Loyola University School of Medicine	(1927) 75, 76, 77, 78, 78, 79, 79, 79, 79, 79, 79, 79, 80, 80, 81, 81, 81, 81, 81, 82, 82, 83, 83, 83, 83, 87	
Northwestern University Medical School	(1926) 80, 81, 83, (1927) 75, 76, 77,† 77, 77, 77, 78, 78, 79, 79, 79, 80, 81, 81, 81, 81, 81, 82, 83, 83, 83, 84, 85, 85	
Rush Medical College	(1927) 75, 76, 77, 78, 80, 80, 80, 82, 82, 82, 82, 82, 83, 83, 83, 84, 84, 85, 85, 86, 87, 88, 89	
University of Illinois College of Medicine	(1927) 76, 76, 76, 76, 76, 77, 77, 77, 77, 78, 78, 79, 79, 79, 79, 79, 79, 80, 80, 80, 80, 80, 80, 80, 81, 81, 81, 81, 81, 82, 82, 82, 82, 82, 82, 82, 82, 83, 83, 83, 83, 83, 83, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86, 87, 87, 88	
Indiana University School of Medicine	(1926)	76
St. Louis University School of Medicine	(1926) 77, 78, 80	
Washington University School of Medicine	(1926)	84
Meharry Medical College	(1925)	76
Dalhousie University Faculty of Medicine	(1926) 76, 77	
University of Toronto Faculty of Medicine	(1925)	86
University of Leipzig, Germany	(1922)	76

FAILED — College	Year Grad.	Per Cent
Chicago College of Medicine and Surgery	(1916)	73
Chicago Homeopathic Medical College	(1900)	46
Chicago Medical College	(1922) 58, (1926) (1927)* 55, 62, 69, 70, 76	61,
Loyola University School of Medicine	(1927)	*
Northwestern University Medical School	(1913) 71, (1927)	*, 72
University of Illinois College of Medicine	(1927)	71
Washington University School of Medicine	(1903)	67
Meharry Medical College	(1914)	*
Bohemian University of Prague, Czechoslovakia	(1919)‡	53
University of Greifswald, Germany	(1921)	73
University of Königsberg	(1913)	68
University of Naples, Italy	(1921)	62

LICENSED BY RECIPROCITY — College	Year Grad.	Reciprocity with
General Medical College, Chicago	(1924)	Wisconsin
Rush Medical College	(1921)	Wisconsin
Indiana University School of Medicine	(1923)	Indiana
State University of Iowa College of Medicine	(1925, 2)	Iowa
Johns Hopkins University School of Medicine	(1922)	Maryland
Boston University School of Medicine	(1924)	Michigan
St. Louis University School of Medicine	(1926)	Kansas, Ohio
Washington University School of Medicine	(1926)	Kansas
Creighton University School of Med.	(1922), (1924), (1926)	Nebraska
University of Nebraska College of Med.	(1921, 2), (1926)	Nebraska
Medical Department of Columbia University	(1892)	Montana
University of Oklahoma School of Medicine	(1924)	Oklahoma
Meharry Medical College	(1895) Tennessee, (1914)	Alabama

ENDORSEMENT OF CREDENTIALS — College	Year Grad.	Endorsement with
College of Physicians and Surgeons, Los Angeles	(1914)	U. S. Army
Loyola University School of Medicine	(1927)	U. S. Navy
Harvard University Medical School	(1925)	N. B. M. Ex.
Washington University School of Medicine	(1918), (1925)	N. B. M. Ex.
Cornell University Medical College	(1923)	N. B. M. Ex.

* No grade given.

† This candidate has finished his medical course and will receive his M.D. degree on completion of one year's internship in a hospital.

‡ Verification of graduation in process.

Maryland June Examination

Dr. Henry M. Fitzhugh, secretary of the Board of Medical Examiners of Maryland, reports the written examination held at Baltimore, June 21-24, 1927. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Of the 77 candidates examined, 76 passed and 1 failed. Thirteen candidates were licensed by reciprocity, 4 were licensed by endorsement of their credentials, and 1 was granted a license by special examination. The following colleges were represented:

PASSED — College	Year Grad.	Per Cent
George Washington University Medical School	(1926) 81.7, 90.4	
Georgetown University School of Medicine	(1927)	84
Johns Hopkins University School of Medicine	(1923) (1924) 80.5, (1925) 90.3, (1926) 82.7, 85.1, 85.7, 86.3, 88.8, (1927) 78.4, 80.3, 81.2, 82.1, 83.6, 85.3, 85.5, 85.8, 86.3 86.7, 87.5, 88, 89.6, 90.2, 91.3, 91.5	86.1,
University of Maryland School of Medicine and the College of Physicians and Surgeons	(1916) (1926) 90.2, (1927) 81.3, 82, 82.3, 82.5, 83, 84.5, 85.4, 85.6, 85.7, 85.8, 86, 86, 86.4, 86.4, 86.4, 86.5, 86.8, 87.1, 87.7, 88, 88.3, 88.4, 88.8, 88.8, 88.8, 89, 89, 89.3, 89.3, 89.4, 89.5, 89.6, 89.6, 89.8, 90.3, 90.5, 90.8, 91.7, 92.6, 93.3, 93.4	78.5,
Universiy of Pennsylvania School of Medicine	(1926)	85.5
Medical College of Virginia	(1927) 82,8, 83,	84.2
Queen's University Faculty of Madison	(1924)	85.4
University of Manitoba Faculty of Medicine	(1920)	85.3

FAILED — College	Year Grad.	Per Cent
Meharry Medical College	(1927)	70

LICENSED BY RECIPROCITY — College	Year Grad.	Reciprocity with
Yale University School of Medicine	(1924)	Connecticut
George Washington University Medical School	(1925)	Dist. Colum.
Rush Medical College	(1921)	California
State University of Iowa College of Medicine	(1925)	Iowa
Baltimore Medical College	(1913)	Penna.
Johns Hopkins University School of Medicine (1924) West Virginia	(1917)	Michigan
Ohio State University College of Medicine	(1926)	Ohio
Jefferson Medical College of Philadelphia	(1903)	Penna.
Meharry Medical College	(1907)	S. Carolina
University of Texas School of Medicine	(1920)	Texas
Medical College of Virginia	(1913)	Virginia
University of Virginia Department of Medicine	(1925)	Virginia

ENDORSEMENT OF CREDENTIALS — College	Year Grad.	Endorsement with
Johns Hopkins University School of Medicine (1925), (1926) N. B. M. Ex.	(1924)	N. B. M. Ex.
University of Maryland School of Medicine and the College of Physicians and Surgeons	(1888)	U. S. Navy
Medico-Chirurgical College of Philadelphia	(1899)	Special Examination

Missouri July Examination

Dr. James Stewart, secretary of the State Board of Health of Missouri, reports the written examination held at St. Louis, July 13-15, 1927. The examination covered 14 subjects and included 110 questions. An average of 75 per cent was required to pass. Of the 107 candidates examined, 106 passed and 1 failed. The following colleges were represented:

PASSED — College	Year Grad.	Number Passed
Loyola University School of Medicine	(1927)	1
Northwestern University Medical School	(1927)	5
Rush Medical College	(1926), (1927, 2)	3
State University of Iowa College of Medicine	(1925)	1
University of Kansas School of Medicine	(1926)	1
Harvard University Medical School	(1927)	1
St. Louis College of Physicians and Surgeons	(1922)	1
St. Louis Univ. School of Med.	(1925), (1926, 5), (1927, 56)	62
Washington Univ. Sch. of Med.	(1925), (1926, 5), (1927, 19)	25

University of Cincinnati College of Medicine	(1927)	1
Meharry Medical College	(1925), (1926, 3)	4
Marquette University School of Medicine	(1927)	1

College	FAILED	Year Grad.	Number Failed
University of Kiel, Germany		(1920)	1

Ohio June Examination

Dr. H. M. Platter, secretary of the Ohio State Medical Board, reports the oral, written and practical examination held at Columbus, June 7-10, 1927. The examination covered 12 subjects and included 80 questions. An average of 75 per cent was required to pass. Of the 208 candidates examined, 207 passed and 1 failed. Forty-three candidates were licensed by reciprocity and 3 were licensed by endorsement of their credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Yale University School of Medicine		(1926)	86.9
Loyola University School of Medicine		(1927)	79.2
Northwestern University Medical School		(1926)	79.3
Rush Medical College		(1927)	76.2
University of Illinois College of Medicine		(1927)	82.9
Indiana University School of Medicine		(1927)	83.5
Louisville Medical College		(1907)	75
Harvard University Medical School		(1926)	82.3, 83.4
St. Louis University School of Medicine		(1925) (1926) 79.4, 80.2, 81.5, 82.7, 84.5, (1927) 86.5	82.1,
Cornell University Medical School		(1926)	82
Eclectic Medical College, Cincinnati		(1927) 75, 75, 76.1, 77.1, 77.4, 77.7, 77.7, 78.4, 80.7, 81.3, 81.3, 81.5, 81.5, 82, 82.2, 82.4, 82.6, 82.6, 83.8, 84.1	75,
Ohio State University College of Medicine		(1926) (1927) 77.8, 78.2, 78.7, 78.9, 78.9, 79, 79.2, 79.5, 79.8, 79.8, 80, 80.2, 80.2, 80.4, 80.7, 80.7, 81.6, 81.8, 81.8, 81.8, 82, 82.3, 82.5, 82.8, 82.8, 82.9, 82.9, 82.9, 83.3, 83.4, 83.4, 83.5, 83.6, 83.7, 83.8, 84, 84, 84.2, 84.4, 84.6, 84.7, 84.7, 85.3, 85.4, 85.5, 85.5, 86, 86.5, 86.5, 86.6, 87, 87, 87.5, 87.7, 88.6	81.7,
University of Cincinnati College of Medicine		(1927)* 75, 75, 75.1, 75.6, 75.9, 77.4, 78, 78, 78.7, 78.8, 78.8, 78.9, 78.9, 79, 79.8, 79.9, 80, 80, 80, 80.1, 80.5, 80.6, 80.6, 80.8, 81, 81.3, 81.4, 81.6, 81.8, 81.9, 82.1, 82.2, 82.3, 82.6, 82.6, 82.6, 82.9, 83, 83, 83, 83.1, 83.4, 83.9, 84, 84.4, 85, 85.2, 85.4, 85.8, 86, 86.6, 87.2, 88.2, 88.5, 88.7	78.9,
Western Reserve University School of Medicine		(1927) 81.5, 81.7, 82.1, 82.3, 82.4, 82.5, 82.6, 83.1, 83.1, 83.2, 83.3, 83.5, 83.6, 83.8, 83.9, 84.1, 84.2, 84.6, 84.6, 84.7, 84.7, 84.8, 84.8, 84.8, 84.9, 85.1, 85.3, 85.5, 85.6, 85.9, 86, 86.3, 86.9, 87.2, 87.5, 87.6	80.6,
Hahnemann Med. Coll. and Hosp. of Phila., Homeo.		(1927) 79.4, 80.2, 80.4, 83.5	78.6,
Jefferson Medical College of Philadelphia		(1925) (1927) 83.9, 84	75.8, 82,
University of Pennsylvania School of Medicine		(1925) (1926) 85.3	85.9,
University of Pittsburgh School of Medicine		(1926)	81.3
Dalhousie University Faculty of Medicine		(1925)	78.9
McGill University Faculty of Medicine		(1925)	75.9
University of Toronto Faculty of Medicine		(1924) 76, (1926) 81.6, 83.3	
University of Western Ontario Medical School		(1919)	80.7
University of Vienna, Austria		(1923)†	80.6
Frederick Wilhelm University, Berlin		(1926)†	79.4

College	FAILED	Year Grad.	Per Cent
Starling Medical College, Columbus		(1880)	53

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University Medical School		(1897)	Dist. Colum.
Howard University School of Medicine		(1925) (1926) District of Columbia	N. Carolina
Emory University School of Medicine		(1926)	Georgia
Rush Medical College		(1914)	Illinois
Indiana University School of Medicine		(1908), (1926)	Indiana
State University of Iowa College of Medicine		(1922), (1925)	Iowa
University of Kansas School of Med.		(1924), (1925), (1926)	Kansas
University of Louisville School of Medicine		(1926, 2)	Kentucky
Johns Hopkins University School of Med.		(1907), (1922)	Maryland
University of Michigan Medical School		(1924), (1926, 5)	Michigan
University of Minnesota Medical School		(1927)	Minnesota
Washington University School of Medicine		(1919)	Missouri
Creighton University School of Medicine		(1925)	Nebraska
New York Med. Coll. and Hosp. for Women		(1904)	New York
Leonard Medical College		(1911)	Tennessee
University of Cincinnati College of Medicine		(1927, 2)	N. Carolina
University of Oklahoma School of Medicine		(1923)	Oklahoma
Jefferson Medical College of Philadelphia		(1919), (1923)	Penna.
Temple University School of Medicine		(1918)	New Jersey
Meharry Medical College		(1924), (1926)	Tennessee
University of Tennessee College of Medicine		(1921) (1926) Tennessee	Arkansas
Vanderbilt University School of Medicine		(1926)	Tennessee
Medical College of Virginia		(1926)	Virginia
Marquette University School of Medicine		(1927)	Wisconsin
McGill University Faculty of Medicine		(1924)	New Jersey
University of Palermo, Italy		(1919)†	W. Virginia
University of Rome, Italy		(1920)†	Michigan

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Rush Medical College		(1923), (1925), (1926)	N. B. M. Ex.

* These candidates will receive their M.D. degrees on completion of one year's internship in a hospital.
† Verification of graduation in process.

Book Notices

HYPOTENSION. By Alfred Friedlander, Professor of Medicine, College of Medicine, University of Cincinnati. Medicine Monographs Volume XIII. Cloth. Price, $2.50. Pp. 193. Baltimore: Williams & Wilkins Company, 1927.

This volume presents a series of summaries of the works of various authors and statistics gleaned from insurance company reports on every phase of hypotension. The bibliography lists almost 400 authors. The opinions are of course divergent. While there are many conditions which are associated with hypotension, there are no grounds for establishing hypotension as a clinical entity. There are conditions in which a low tension gives definite information that a serious situation exists. The reports of attempts at raising blood pressure by various types of injections are also at variance. One thing, however, seems fairly well agreed on. In the absence of anything else, a systolic blood pressure of 100 is not incompatible with good health and does not present an indication for treatment. The last few pages of the volume present in a more concise form all that has been noted in the preceding pages.

THE DIAGNOSIS OF PANCREATIC DISEASE. By Robert Coope, M.D., B.Sc., M.R.C.P., Senior Assistant Physician, Royal Southern Hospital, Liverpool. Cloth. Price, $1.50. Pp. 122, with 12 illustrations. New York: Oxford University Press, 1927.

This monograph, the original title of which was "The Value of the Various Methods of Investigating Diseases of the Pancreas," was the 1926 Rogers prize essay in the University of London. Following a brief historical introduction, the author takes up first in a clear and concise manner the anatomic, physiologic and pathologic background of diseases of the pancreas. The clinical aspects are then discussed, with due emphasis on the importance of history and physical diagnosis. As might be expected from the original title, about half the book is taken up with description and evaluation of the many tests that have been used in attempting to detect changes in pancreatic function; tests on duodenal contents, for pancreatic ferment in the stomach, in the feces or in the urine; indirect tests based on study of undigested food in the feces, on materials inclosed in enteric capsules or activated by pancreatic juice; tests based on altered insulin production; therapeutic tests, and "esoteric" tests. This work is based on a considerable experience and on a most careful survey of the literature and brings out the fact that little of real diagnostic value is at present available excepting history and physical examination. Physicians (as well as grammarians) "dispute, and still the controversies remain unsettled. . . . Nevertheless, I would remark that if knowledge of the working of the normal organism continues to advance with the rapidity seen in the last decade, we may look forward hopefully to a time in the not distant future when the difficulties that beset the diagnosis of pancreatic disease will become much less formidable, though doubtless there will always be many cases in which it will still be anything but simple."

POSTENCEPHALITIC RESPIRATORY DISORDERS. Review of Syndromy, Case Reports, Physiopathology, Psychopathology and Therapy. By Smith Ely Jelliffe, M.D., Ph.D. Nervous and Mental Disease Monograph Series No. 45. Cloth. Price, $2.50. Pp. 135, with illustration. Washington, D. C.: Nervous and Mental Disease Puolishing Company, 1927.

The first part of this work is a detailed and critical survey of what probably constituted all the cases reported in the literature on respiratory disturbances following encephalitis. Two of the author's own cases are then thoroughly discussed from a psychiatric and psychoanalytic point of view. The third part contains a discussion of the problems as a whole. Jelliffe urges that epidemic encephalitis is a diffuse organic brain disease which produces bizarre disturbances in the respiratory rhythm not by an organic lesion of hypothetic respiratory centers but by a disturbance in higher cortical inhibition, releasing activity of the lower centers and deviating the libido through lower levels, which may be at times the respiratory level. If the author's conception is correct, treatment should not be the use of inefficacious drugs but psychoanalytic means attempting to divert the flow of energy from the respiratory level to some other less disturbing outlet. The

author's two patients were successfully treated in this manner. The obvious criticism against the book is its technical psychoanalytic terminology, which in general is responsible for the great prejudice that neurologists have against the various conceptions. Few men are able to understand what Jelliffe really means; therefore one should at least wait to see whether the truth of his ideas can be proved and not criticize them prematurely.

L'ANGINA DI PETTO. Por Prof. s. La Franca. Paper. Price, 8 lire. Pp. 37. Bologna: L. Cappelli, 1926.

This monograph is a summary of present-day views on angina pectoris. After a brief historical introduction in which the author justly decides that the credit for the first accurate observations shall go to Heberden rather than to Rougnon, there are discussed the typical and atypical clinical forms of the disease, the etiologic and pathologic factors and the treatment, due consideration being given to surgery. One is pleased to note that Franca recognizes a type of angina due to coronary obstruction and distinguishes it from the paroxysmal angina of effort. The mechanism of pain in these two forms is considered. There is frequent reference to the literature, mention often being made of the writings of Mackenzie, Danielopolu and Wenckebach. The brochure, while in no sense complete and while not disclosing new facts or theories as to angina, yet is of value to one who wishes to read in brief form the later views and facts as to this disease or, as some prefer to call it, this complex of symptoms.

AN INTRODUCTION TO THE HISTORY OF MEDICINE FROM THE TIME OF THE PHARAOHS TO THE END OF THE XVIIIth CENTURY. By Charles Greene Cumston, M.D., Lecturer on the History of Medicine and Medical Philosophy in the University of Geneva. With an essay on the relation of history and philosophy to medicine. By F. G. Crookshank, M.D., F.R.C.P. Cloth. Price, $5. Pp. 390, with 25 illustrations. New York: Alfred A. Knopf, 1926.

This volume is devoted primarily to a philosophical presentation of the history of medicine from the Egyptian period to the end of the eighteenth century. It is part of a series of books on the history of civilization by one publisher. It is especially to be commended for the quality of the printing, for the reproduction of numerous unusual engravings, many of them from the author's personal collection, and for the intelligence of the presentation. Cumston considers the growth of medicine as a pure science and as an applied science. He is able in the midst of his philosophical deductions to present practically all the available facts that appear in other works on the subject. The book is not to be recommended to the beginning student in the history of medicine, but is likely to constitute a fascinating volume for any one interested in the trend of medical thought through the ages.

ANATOMIE ÉLEMÉNTAIRE DES CENTRES NERVEUX ET DU SYMPATHIQUE CHEZ L'HOMME. Vie de relation et vie végétative. Par P. Gilis, professeur d'anatomie à la Faculté de médecine de Montpellier. Paper. Price, 20 francs. Pp. 232, with 36 illustrations. Paris: Masson & Cie, 1927.

This book may be described rather adequately as just another small compilation of anatomic and physiologic data on the sympathetic nervous system. There are a number of such monographs, most of them of foreign authorship. If less were written and more work done to verify the statements so easily set down, the student might feel happier about the situation. Just now the sympathetic nervous system is suffering from too many press agents, and many of them are making opportunity of the situation.

PSYCHIATRIE. Von Prof. Dr. Emil Kraepelin und Prof. Dr. Johannes Lange. Band II. Teil 1. Klinische Psychiatrie. Von Dr. Emil Kraepelin, ord. Professor a. d. deutschen Forschungsanstalt für Psychiatrie in München. Ninth edition. Paper. Price, 69 marks. Pp. 1471, with 326 illustrations. Leipsic: Johann Ambrosius Barth, 1927.

This deals with the psychiatric disturbances in traumatic brain diseases, endogenous and exogenous toxemias, infections, hereditary diseases, tumors and endocrine disturbances, as well as the various forms of syphilis. Great detail is devoted not only to the psychiatric manifestations of these diseases but also to an ample discussion of etiology, pathology and treatment. The book is written in poor form, so that it is difficult to gain access quickly to the material.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

A TEXT-BOOK OF THERAPEUTICS INCLUDING THE ESSENTIALS OF PHARMACOLOGY AND MATERIA MEDICA. By A. A. Stevens, A.M., M.D., Professor of Applied Therapeutics in the University of Pennsylvania. Seventh edition. Cloth. Price, $6.50 net. Pp. 758. Philadelphia: W. B. Saunders Company, 1927.

Revised edition with references to new drugs and new methods of treatment such as medical diathermy.

GONOCOCCAL INFECTION IN THE MALE. By Abr. L. Wolbarst, M.D., Urologist and Director of Urologic Clinics, Beth Israel Hospital. With a chapter written by J. E. R. McDonagh, F.R.C.S., Surgeon, London Lock Hospital. Cloth. Price, $5.50. Pp. 237, with 82 illustrations. St. Louis: C. V. Mosby Company, 1927.

Résumé of methods with a few pages by McDonagh revealing his notions in the matter.

EMERGENCIES OF A GENERAL PRACTICE. By Nathan Clark Morse, A.B., M.D., F.A.C.S. Revised and rewritten by Amos Watson Colcord, M.D., Surgeon, Carnegie Steel Co. Second edition. Cloth. Price, $10. Pp. 541, with 311 illustrations. St. Louis: C. V. Mosby Company, 1927.

The things that chiefly concern the general practitioner are here practically elucidated.

BRONCHOSCOPY AND ESOPHAGOSCOPY. A Manual of Peroral Endoscopy and Laryngeal Surgery. By Chevalier Jackson, M.D., Sc.D., LL.D., Professor of Bronchoscopy and Esophagoscopy, Jefferson Medical College. Second edition. Cloth. Price, $8 net. Pp. 457, with 189 illustrations. Philadelphia: W. B. Saunders Company, 1927.

Revised text of technic and results by leading authority in the field concerned.

CLINICAL AND ABNORMAL PSYCHOLOGY. A Textbook for Educators, Psychologists and Mental Hygiene Workers. By J. E. Wallace Wallin, Ph.D., Director Bureau of Special Education and Psycho-Educational Clinic, Miami University. Cloth. Price, $3. Pp. 649, with 34 illustrations. Boston: Houghton Mifflin Company, 1927.

Guide to psychologic methods adapted to educational and medical practice.

CLINICAL CASE-TAKING. Supplement to Methods in Medicine. By George R. Herrmann, M.D., Ph.D., Assistant Professor of Medicine, Tulane University. Cloth. Price, $1.50. Pp. 90, with illustrations. St. Louis: C. V. Mosby Company, 1927.

Brief outline to assist forgetful students in taking case histories.

GETTING WELL AND STAYING WELL. A Book for Tuberculous Patients, Public Health Nurses, and Doctors. By John Potts, M.D. Introduction by J. B. McKnight, M.D., Superintendent and Medical Director, Texas State Tuberculosis Sanatorium. Cloth. Price, $2. Pp. 223. St. Louis: C. V. Mosby Company, 1927.

Brief guide for the tuberculous.

MINOR SURGERY. By Arthur E. Hertzler, M.D., F.A.C.S., Chief Surgeon, Halstead Hospital, and Victor E. Chesky, A.B., M.D., F.A.C.S., Chief Resident Surgeon, Halstead Hospital. Cloth. Price, $10. Pp. 568, with 438 illustrations. St. Louis: C. V. Mosby Company, 1927.

The care of wounds, burns, and of other injuries in a modern surgical manner.

INFECTIOUS DISEASES AND ASEPTIC NURSING TECHNIQUE. A Hand-Book for Nurses. By Dennett L. Richardson, M.D., Superintendent of the Providence City Hospital. Cloth. Price, $1.50 net. Pp. 182, with 22 illustrations. Philadelphia: W. B. Saunders Company, 1927.

More information for highly informed nurses.

SHOW WINDOW. By Elmer Davis. Cloth. Price, $2.50 net. Pp. 285, New York: John Day Company, 1927.

Essays in the modern form on educators, bishops, litterateurs and William Hale Thompson.

MODERN MEDICINE: Its Theory and Practice in Original Contributions by American and Foreign Authors. Volume V. Diseases of the Blood—Diseases of the Lymphatic System—Diseases of the Ductless Glands—Diseases of the Urinary System—Vasomotor and Trophic Disorders—Diseases of the Locomotor System. Edited by Sir William Osler, M.D., F.R.S. Re-edited by Thomas McCrae, M.D., Professor of Medicine in the Jefferson Medical College, and Elmer H. Funk, M.D., Assistant Professor of Medicine, Jefferson Medical College. Third edition. Cloth. Price, $9. Pp. 948, with 93 illustrations. Philadelphia: Lea & Febiger, 1927.

Miscellany

ZOOLOGICAL NOMENCLATURE

The International Zoological Congress (Stiles, C. W.: Amendments to the International Rules of Zoological Nomenclature, *Pub. Health Rep.* **42**:2639 [Oct. 28] 1927), meeting at Budapest in September, adopted a recommendation of the International Commission on Zoological Nomenclature concerning an amendment to article 25. This article is concerned with priority and now reads:

ARTICLE 25.—The valid name of a genus or species can be only that name under which it was first designated on the condition:

(*a*) That (prior to Jan. 1, 1931) this name was published and accompanied by an indication, or a definition, or a description; and

(*b*) That the author has applied the principles of binary nomenclature.

(*c*) But no generic name nor specific name published after Dec. 31, 1930, shall have any statis of availability (hence, also, of validity) under the rules, unless and until it is published either:

1. With a summary of characters (seu diagnosis; seu definition; seu condensed description) which differentiate or distinguish the genus or the species from other genera or species.

2. Or with a definite bibliographic reference to such summary of characters (seu diagnosis; seu definition; seu condensed description). And further:

3. In the case of a generic name, with the definite unambiguous designation of the type species (seu genotype; seu autogenotype; seu orthotype).

The commission, furthermore, adopted the following resolution:

(*a*) It is requested that an author who publishes a name as new shall definitely state that it is new, that this be stated in only one (i. e., in the first) publication, and that the date of publication be not added to the name in its first publication.

(*b*) It is requested that an author who *quotes a generic name*, or a specific name or a subspecific name shall add at least once the author and year of publication of the quoted name or a full bibliographic reference.

Medicolegal

Where Action for Malpractice Must Be Brought

(Wiese v. Becker (Texas), 294 S. W. R. 991)

The Court of Civil Appeals of Texas says that this action was brought in Austin County to recover damages alleged to have been suffered by the plaintiff by reason of the alleged careless and negligent setting, bandaging and treating of one of her arms, which had been fractured. It was alleged that the setting and bandaging of the arm had been done by the defendant in Washington County, but that the effect thereof had continued, and such unskilful acts had been permitted to remain, while the plaintiff resided in Austin County, and that such acts amounted to a continuing trespass, a part of which took place in Austin County. The plaintiff insisted that the venue of this action was properly in Austin County; that it might be sustained in either Austin County or Washington County; that, while the means by which the injury was inflicted, or which produced the injury, was applied and set in motion in Washington County, where the defendant resided, it was shown by the plaintiff's petition and affidavit that the bandage applied was twisted in the form of a rope and tightly applied, so that while the plaintiff was in Austin County it cut off circulation, cut into the tissues, nerves and ligaments of the arm; that such injury did not occur in Washington County but in Austin County; that such injury was not immediately inflicted when the arm was set and the bandage was applied in Washington County but was gradually produced by the unskilfully applied bandage. The defendant filed his plea of privilege to be sued in Washington County, the county of his residence. The plea was sustained, the clerk of the court being ordered to forward all papers in the cause to the clerk of the district court of Washington County, and that order or judgment is affirmed.

Under the provisions of section 9 of article 1830 of the civil statutes of Texas, an action based on a crime, offense or trespass cannot be maintained, as against a proper plea of privilege, in any county except one where such crime, offense or trespass was committed, or in the county where the defendant has his domicile. In order to constitute a "continuing trespass," begun in one county and concluded in another, there must be some affirmative act constituting a trespass committed in each county. The negligent or unskilful setting and bandaging of the plaintiff's broken arm in Washington County, from which her injury subsequently resulted in Austin County, did not constitute a "trespass" in the latter county, as that term is used in the Texas venue statute. Accepting as true the allegations made in the plaintiff's petition and in her controverting affidavit, it was shown that there was no affirmative act constituting a trespass committed by the defendant in Austin County. Taking the allegations as true as to everything that the defendant did, the performance of setting the plaintiff's arm, bandaging it, and the giving of advice with reference to it, took place, not in Austin County where the action was brought, but in Washington County.

Valid Stipulations in Widow's Consent to Necropsy

(Hill v. Travelers' Ins. Co. et al. (Tenn.), 294 S. W. R. 1097)

The Supreme Court of Tennessee says that this was an action against an insurance company and a physician for damages for an unauthorized mutilation and exposure of the body of the plaintiff's deceased husband. The declaration averred that while the body was being prepared for burial the insurance company requested permission to have a necropsy performed, which the plaintiff finally consented to "with the expressed stipulation that same must be done in a proper and decent way, that it must not be made in an open or public place, and that it must not involve the mutilation of the body"; that the necropsy was performed by the defendant physician, acting as agent for the insurance company; that in making the necropsy the defendants were wanton, wilful and inhuman in their disregard of the feelings and sensibilities of the plaintiff, in violation of her legal rights, in that the necropsy was performed in an open space in the cemetery, in plain view of nearby residences, and where the public might and did look on the necropsy, and in that parts of vital organs, including the heart, were removed from the body and retained by the defendants in disregard of law and common decency and the expressed conditions and limitations of the plaintiff's permission." The declaration further averred that, after removing the heart from the body, the defendants used it as evidence in an effort to defeat the plaintiff's claim on the policy of accident insurance which the company had issued to her husband, after which the heart was retained by the physician and used in a medical college for purposes of scientific exhibition and instruction. The declaration averred that, as a direct consequence of this wrongful, wilful and wanton conduct on the part of the defendants, the plaintiff suffered from worry, grief and mental anguish to the extent that she completely lost her health and was confined at times in a hospital in a state of nervous collapse, and had suffered a permanent injury to her health.

The defendants filed a demurrer to the declaration, which demurrer made the defense that the declaration failed to state a cause of action against the defendants, and also interposed the statute of limitations of one year as a bar to the action. A judgment sustaining the demurrer is reversed and the cause remanded for further proceedings. The plaintiff in this case, having the undoubted right to refuse to permit a necropsy to be held at all, had the right to clothe her consent with any stipulations or limitations she might choose to make. The expressed limitation that the body should not be mutilated clearly negatived any consent on the part of the plaintiff that any portion of the body should be severed and removed. Also, the court thinks, the plaintiff had the right to dictate that the necropsy be held in private and not in a public place. The violation of either or both of these limitations on the permission given by the plaintiff for the necropsy was a trespass on her rights. It is the court's conclusion, therefore, that the declaration did state a cause of action against both of the defendants.

The statute of limitations of one year invoked by the defendants applies to actions for injuries to the person, etc., and it was the contention of the defendants that the cause of action stated in the declaration was for injuries to the person. The damages recoverable in such a case, however, are not for the

injury done to the dead body, but are for the wrong or trespass on the plaintiff's right to the undisturbed possession and control of the body, measured by the mental anguish and suffering of the plaintiff occasioned thereby. Clearly this is not an action for "injuries to the person."

Competence as Witnesses of Persons of Unsound Mind

(In re Paul (U. S.), 18 Fed. R. (2d) 448)

The United States District Court, in Washington, says that, an order having been entered requiring the alleged bankrupt in this case to appear before a referee in bankruptcy, to be examined under oath concerning his acts, conduct and property, motion was made for a rescinding of the order, on the ground that an order had been entered by a state court in which it was adjudged that the alleged bankrupt was a mentally incompetent person of unsound mind, and a guardian was appointed for his person and estate; but that motion is denied. Arbitrary rules fixing the competence of a "mentally incompetent" witness to testify do not obtain. Courts have been keeping pace with the progress of science and enlightened unfolding, and have relaxed the rigor of the rules. Now competence depends on the understanding and moral sense—the degree of intelligence and understanding—of the witness. A lunatic is generally recognized as competent to testify if he has sufficient mind to understand the nature and obligation of an oath, and give expression to the matters of which he knows or has seen and heard. Unsoundness of mind of itself will not render a person incompetent as a witness. The competence is determined by his understanding of the obligation of an oath and ability to give a correct account of what he has seen and heard in reference to the matter in controversy. Whether the witness can meet the test is a question for the court. The competence of the alleged bankrupt as a witness might not be determined by the order of the state court adjudicating him "mentally incompetent," but must be determined by the sound discretion of the referee at the time of his examination.

Board of Health and Reputability of Medical College

(State ex rel. Kansas City University of Physicians and Surgeons v. North et al. (Mo.), 294 S. W. R. 1012)

The Supreme Court of Missouri says that this was a proceeding in certiorari brought by the relator to compel the state board of health to send up its record to the circuit court, relating to the inspection and finding of the board concerning the reputability of the relator as a college of physicians and surgeons under the laws of Missouri. The board made a return embracing the minutes of the meetings of the board and the report of its committee concerning the inspection and survey of the relator. The circuit court, on a hearing, made an order adjudging that the Kansas City University of Physicians and Surgeons was not a reputable medical school within the meaning of the laws of Missouri. From that judgment the medical school appealed to the supreme court, which affirms the judgment of the circuit court.

The Missouri statute does not define a reputable medical school, except incidentally, in providing that an applicant for a license to practice medicine shall furnish the state board of health with satisfactory evidence of having secured a diploma from some reputable medical college of four years' requirements, including two years' experience in operative and hospital work at the time of graduation (section 7332, laws 1923, p. 254). The reputability, therefore, of a medical school is a question of fact, and is left to the judgment of the state board of health, subject to a review by the courts. The authority of the board to determine in each given case the repute of medical colleges was declared in *State ex rel. Abbott* v. *Adcock*, 225 Mo. loc cit. 360, 124 S. W. 1100, 1108, in which it was held that the statute concerning the granting of licenses to practice medicine left it to the state board of health to pass on "the reputableness of all medical colleges."

Proof of former conditions of inefficiency in the absence of evidence to the contrary, is, it is true, but persuasive of the continuance of such conditions. When, however, such proof is supplemented by evidence of a present similar condition in the conduct and management of the college, such proof justifies the conclusion not only that such conditions have been continuous, but also that those who are conducting the college are wilfully disinclined or unable to comply with the requirements of the state board of health in the lawful exercise of its power.

Legislative enactments, conferring powers on the board of health, have, here and elsewhere, been given a liberal construction. The very nature of these enactments and the purpose they are intended to subserve furnish not only an explanation for the manner of their interpretation but also the reason. While judges are declared to be conservators of the peace, a state board of health may justly be held to be a conservator of the public health. In recognition of this fact the courts have declared that every intendment should be allowed in favor of the validity of their actions. In recognition of the liberal manner in which laws concerning boards of health are to be construed, this court held in *State ex rel. Crites* v. *Clark*, 230 S. W. 609, that the state board of health may exercise its reasonable discretion in determining the reputability of a medical college of four years' requirements, under section 7332, revised statutes of 1919, as amended, laws of 1923, p. 254. The limit of the exercise of the board's power must always be within reason. Neither the actions of a board of this character, nor of any other for that matter, charged with the performance of a public duty, will be upheld, if arbitrary, unfair, or violative of any right to which a person, natural or artificial, is entitled under the law. If a board's acts are reasonable, however, and thus clearly within the purview of its powers, they are entitled to and will receive judicial sanction.

The rules of the state board of health in force at the time the medical college under review was held not to be reputable were the same as those in force at the time the Adcock case and subsequently the Crites case were decided. In those cases this court held the rules to be reasonable. A like ruling must therefore, in reason, be made in regard to the present rules. The reasonableness of the rules, the absence of any evidence of arbitrary action in their enforcement, and the ample proof adduced of the lack in many respects of the college to comply with the requirements of the board under the law, authorized an affirmance of the judgment of the circuit court.

Injury Held Cause of Death Resulting from Embolus

(Black Mountain Corporation v. Black (Ky.), 294 S. W. R. 820)

The Court of Appeals of Kentucky, affirming a judgment which affirmed an award in favor of the widow of an employee, says that the latter in the course of his employment sustained a fracture of the femur of his left leg, between the knee and the hip joint. A few days thereafter, he had a cough that developed into influenza and was complicated by pneumonia and pleurisy, according to the attending physician, who also said that the man had fever, coughed up pus and blood, and had a pain in his side and in his lung. Those ailments seemed to surrender to treatment, but twenty days after the accident the man was seized with a spasm and died within a short while, the cause of the spasm being an embolus. There was a contrariety of professional testimony in the case, but the court thinks that the evidence was sufficient to produce the conviction in the mind of the members of the workmen's compensation board, who were the triers of fact, that the embolus, which immediately produced the death, followed the injury in a natural or probable sequence, and was therefore the proximate result of it, making the man's death the proximate result of his accidental injury.

Society Proceedings

COMING MEETINGS

District of Columbia, Medical Society of, Washington, January 4. Dr. C. B. Conklin, 1718 M Street, N.W., Washington, D. C., Secretary.

Philippine Islands Medical Association, Manila, December 14-17. Dr. A. S. Fernando, College of Medicine, University of the Philippines, Manila, Secretary.

Society of American Bacteriologists, Rochester, N. Y., December 28-30. Dr. J. M. Sherman, Dairy Industry Building, Ithaca, Secretary.

Southern Surgical Association, Augusta, Ga., December 13-15. Dr. R. L. Payne, Medical Arts Building, Norfolk, Va., Secretary.

Western Surgical Association, Omaha, December 8-9. Dr. Harry P. Ritchie, Lowry Building, St. Paul, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in America for a period of three days. No foreign journals are available prior to 1921, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

40: 1-158 (Sept. 15) 1927

Postnatal Growth of Chicken Skeleton. H. B. Latimer, Lawrence, Kan., and Kansas City.—p. 1.

*Physique of Male Students at University of Minnesota. C. M. Jackson, Minneapolis.—p. 59.

Dynamics of Histogenesis: XII. Regeneration of Patellae of Dogs. E. J. Carey, W. Zeit and B. F. McGrath, Milwaukee.—p. 127.

Physique of Male University Students.—In general, the evidence obtained by Jackson from his study of 1,633 university students seems to indicate a relatively small amount of correlation between body build and pulmonary or cardiovascular functions.

American J. Diseases of Children, Chicago

34: 525-718 (Oct.) 1927

*Bacteriophage and Skin Tests in Diarrhea of Unestablished Etiology in Children. C. Krenz, Cleveland.—p. 525.

Prophylaxis of Varicella with Vesicle Fluid. W. W. Waddell, Jr., and R. C. Eley, University, Va.—p. 540.

*Dientamoeba Fragilis. J. C. Gittings and A. D. Waltz, Philadelphia.—p. 542.

*Pulmonary Tuberculosis in Infants: Diagnosis by Examination of Stomach Contents. P. F. Armand-Delille, Paris.—p. 547.

Nondiabetic Ketosis in Children. C. A. Weymuller and O. M. Schloss, New York.—p. 549.

Premature Infants: 266 Cases. J. H. Hess and I. M. Chamberlain, Chicago.—p. 571.

*Early Occurrence of Gastric Hemorrhage in Children with Splenomegaly. R. M. Smith and P. J. Howard, Boston.—p. 585.

*Acute Phosphorus Poisoning. R. McIntosh, New York.—p. 595.

Ureteral Stricture and Chronic Pyelitis in Children. G. L. Hunner, Baltimore.—p. 603.

*Treatment of Persistent Rickets. M. W. Bloomberg, Montreal.—p. 624.

Diaphragmatic Paralysis Resulting from Injury of Brachial Plexus. J. W. Epstein, Cleveland.—p. 634.

*Intussusception Terminating in "Spontaneous Elimination." L. D. Thompson, St. Louis.—p. 640.

Persistent Vaginal Discharge in Infants and in Little Girls. G. C. Schauffler, Portland, Ore.—p. 644.

Skin Tests in Diarrhea.—In eleven children with diarrhea of unestablished etiology whose stools contained pus, blood and mucus, a positive skin reaction was obtained by Krenz to the broth culture filtrates of one or more strains of *B. coli* which had been isolated from the diarrheal stool. After the stools became normal, the skin reaction became negative to one of these strains but continued to be positive to all others which had previously been positive. The strains that gave negative reactions during the disease remained negative subsequently. The strains of *B. coli* that gave these skin reactions varied culturally. They were of the communis type in six cases and of the communior type in five. The individual strains of the same type showed slight cultural variations. The serums of these patients uniformly failed to agglutinate the bacteria.

Rôle of Diendameba Fragilis in Malnutrition.—Infestation with *Diendameba fragilis* in three children is reported by Gittings and Waltz. All the children were asthenic and slightly malnourished. Two of them are known to have improved following treatment, with a diminution in the number of parasites, but it is problematic whether there was any connection between this infestation and the symptomatology. It seems possible that it may be one cause for malnutrition and asthenia.

Diagnosis of Pulmonary Tuberculosis in Infants.—About thirty years ago, Dr. H. Meunier of Pau, France, showed that it was possible to obtain the sputum of an infant if one lavaged the stomach early in the morning, just after the first cough and before the first meal. Armand-Delille endorses this simple method as being the only means (together with roentgen-ray examination) of confirming the tuberculous nature of some lung conditions in infants.

Splenomegaly with Early Gastric Hemorrhage.—A study of twenty-six children convinces Smith and Howard that there is a definite form of splenomegaly in childhood in which gastric hemorrhage occurs early without previous symptoms of disease. The size of the spleen is reduced following hemorrhage but soon becomes large again. There may be long periods of remission from bleeding followed by a sudden hemorrhage which may prove fatal. The condition apparently does not progress to the typical picture of Banti's disease. The etiology of this condition is best explained on the basis of obstruction to the splenic vein, which produces chronic passive congestion of the spleen and distention of the gastric and esophageal veins, and congestion of the veins in the adhesions between the spleen and the stomach or diaphragm. Thrombophlebitis of the splenic vein is an important cause of venous obstruction. Splenectomy offers a means of controlling the hemorrhage and, so far as their observations go, of effecting a cure of the disease.

Acute Phosphorus Poisoning.—A case of severe acute phosphorus poisoning, with recovery, is described by McIntosh. Studies of the blood in this case demonstrated a hypoglycemia and a disturbance in the mechanism regulating the blood sugar, attributable at least in part to the effects of the poison.

Treatment of Persistent Rickets.—Although rickets usually disappears by the end of the second year, it often persists beyond this age. Eight such instances are presented by Bloomberg. In all, the disease was of an extremely severe type, as evidenced by exaggeration of the usual clinical signs of infantile rickets. Ordinary antirachitic therapy was inadequate; it was only when huge doses of cod liver oil were given along with abundant exposure to the sun's rays that proper healing was obtained.

Intussusception with Spontaneous Elimination.—A case of intussusception terminating in auto-anastomosis and spontaneous elimination is reported by Thompson. The coincidence of intussusception with the presence of intestinal parasites is also recorded.

American Journal of Pathology, Boston

3: 413-582 (Sept.) 1927

Endothelial Reactions: X. Origin of Pulmonary "Dust Cells." N. C. Foot, Cincinnati.—p. 413.

Origin of Alveolar Phagocytes. L. U. Gardner and D. T. Smith, Ray Brook, N. Y.—p. 445.

*Hyaline Degeneration of Islands of Langerhans in Nondiabetics. A. W. Wright, Nashville, Tenn.—p. 461.

Spleen in West African Yellow Fever. O. Klotz and W. Simpson, Toronto.—p. 483.

Local and Systemic Changes Induced by Lipoid Solvents in Animals Fed on Diets Varying in Vitamin Content. L. H. Jorstad and C. G. Johnston, St. Louis.—p. 489.

Effect of Age of Host on Fate of Transplants of Thyroid Glands in Guinea-Pigs. L. L. Tureen, St. Louis.—p. 501.

Reticulum. F. B. Mallory and F. Parker, Jr., Boston.—p. 515.

*Involvement of Aortic Valve in Syphilitic Aortitis. O. Saphir and R. W. Scott, Cleveland.—p. 527.

Islands of Langerhans in Nondiabetics.—Wright reports five cases, clinically nondiabetic, in which the islands of Langerhans showed the hyaline degenerative change characteristic of certain cases of diabetes mellitus. All these patients were over 50 years of age and thus belong in the age group in which hyaline degeneration of the islets is commonly found in true diabetes. The character of the lesions suggested a toxic origin, the injurious agent acting slowly and progressively over a very long period of time. In two cases there was evidence of regeneration of the islet cells, not only of unaffected but of affected islets. Moderate hypertrophy of some of the uninvolved islets was noted in three cases, but this did not bear a constant relation to the amount of insular tissue involved in the degenerative process. One case showed moderate sclerosis of the islets in addition to the hyaline change. Only two cases showed a noteworthy increase in the interacinar connective tissue.

Involvement of Aortic Valve in Syphilitic Aortitis.—The necropsy data in seventy-one cases of aortitis are reviewed by Saphir and Scott. They found that the earliest lesion of

syphilis of the aorta is an obliterative endarteritis of the vasa vasorum. The term "mesa-ortitis syphilitica," therefore, gives an erroneous conception of the disease and "aortitis syphilitica" seems more appropriate. Necrosis of the media is probably secondary and attributable to nutritional disturbances. The changes of the aortic valve due to syphilis are characterized grossly by adhesions between the lateral parts of the leaflets and the aortic intima, leading to a separation of the commissures. The formation of hyaline plaques in this area is secondary. Histologically, the affected parts of the leaflets and the aortic wall of the sinus of Valsalva show first degenerative and later chronic inflammatory changes.

Archives of Internal Medicine, Chicago

40: 399-574 (Oct.) 1927

*Diseases of Joints. F. von Mueller, Munich, Germany.—p. 399.
*Contractions of Gallbladder Seen in Man. S. Levine, New York.—p. 420.
*Effect of Experimental Pyloric Stenosis on Gastric Secretion. A. C. Ivy, E. H. Droegemueller and J. L. Meyer, Chicago.—p. 434.
Effects of Mitral and Tricuspid Incompetence on Work of Heart. D. T. Barry, Cork, Ireland.—p. 446.
*Diseases of Liver: VII. Experimental Obstructive Jaundice. A. M. Snell, C. H. Greene and L. G. Rowntree, Rochester, Minn.—p. 471.
Normal Variations in Leukocytes Under Conditions of Minimal Metabolism. R. P. Stetson, Boston.—p. 488.
Natural Mineral Waters: Catalytic Action of Saratoga Springs. O. Baudisch and D. Davidson, New York.—p. 496.
*Motion of Heart in Disease of Mitral Valve. W. E. Chamberlain and W. Dock, San Francisco.—p. 521.
*Obtaining Material from Lymph Nodes of Man by Puncture for Study. C. E. Forkner.—p. 532.
Diabetes Mellitus: Incidence and Etiology. J. Friedenwald and T. H. Morrison, Baltimore.—p. 538.
*Experimental Uremia. E. Andrews. Chicago.—p. 548.

Diseases of Joints.—Von Mueller points out that pathologic conditions of many kinds are able to localize in the bones and joints and that one has to take a much broader view of diseases of the joints than before. Microscopic, bacteriologic and clinical investigations must be combined for the further study of this important field.

Contraction of Gallbladder.—A case is described by Levine in which changes strongly suggestive of contractions were observed in the gallbladder of man two hours after the administration of the fat meal. The fact that the gallbladder under observation was apparently pathologic does not seem to vitiate the conclusion that the normal gallbladder undergoes contraction at the time when it empties its contents.

Effect of Pyloric Stenosis on Gastric Secretion.—Experimental pyloric obstruction was made by Ivy et al. in twelve dogs with a Pawlow pouch. Seven of the dogs survived for a period of from three and one-half to seven and one-half months. The stenosis first caused a decrease in gastric secretions; later, four of the seven dogs showed a hypernormal secretion, one a normal secretion and two a decreased gastric secretion. The last two should probably be ruled out because their pouches did not reflect the secretory activity of the stomach. The indirect observation of Hamburger and Friedman is confirmed, namely, that experimental pyloric obstruction causes a hypernormal secretion of gastric juice in some cases. The point is emphasized that before Pawlow pouches are used, it should be shown that they reflect the secretory activity of the stomach. The cause of the hypernormal secretion is discussed. A marked hypertrophy of the stomach occurred in four of the seven dogs.

Experimental Obstructive Jaundice.—The effect of ligation of the common bile duct in dogs and the consequent experimental production of obstructive jaundice have been studied further by Snell et al. It was possible to keep two dogs with complete biliary obstruction alive for more than three months. In these dogs an extensive collateral circulation and ascites developed, thus providing an experimental counterpart of the advanced biliary cirrhosis seen clinically in association with prolonged biliary obstruction. Observations made previously were confirmed.

Motion of Heart in Diseases of Mitral Value.—A study made by Chamberlain and Dock of the curves of heart border motion constructed from films taken with Ruggles' roentgen-ray cinematograph shows that in mitral disease the motion of the auricular region is of great significance. A patient with a marked thrill and loud diastolic murmur, but slight systolic murmur, gave curves which are interpreted as those of mitral stenosis. Two patients with loud systolic and soft localized diastolic murmurs gave curves which apparently indicate the preponderance of regurgitation. In one of these, autopsy revealed a mitral orifice with a circumference of 7 cm. held open by a scarred and calcified margin.

Obtaining Material from Lymph Nodes.—Puncture of lymph nodes by means of a hollow needle through which a dental broach is passed is a new, apparently harmless and satisfactory way to obtain sufficient material from patients for study. The value of studying the living cells from diseased lymph nodes by supravital staining is emphasized by Forkner.

Experimental Uremia.—Andrews shows that if animals in which suppression of urine is brought about by either nephrectomy or acidosis are injected with hypertonic salt solution in such amounts that the chloride content of the blood is comparable to that in uremia, they pass into a condition closely resembling uremia. Every manifestation of uremia seen in the human being is reproduced. Both the chlorides and water rapidly make their way from the blood into the tissues. The brain and liver have the highest chloride contents, and are the organs chiefly involved. There is marked degeneration in the liver which is shown to be due to an increased sodium-calcium content at a ratio which renders the liver cells permeable. Andrews feels justified in assuming that these degenerative changes in the liver are the fundamental source of the uremic toxins; that albuminous substances are allowed to escape into the blood on account of the destruction of the cell membranes, and that this is the source of the albumin in the urine in nephritis.

Archives of Otolaryngology, Chicago

6: 309-404 (Oct.) 1927

Vertigo: Surgical Treatment by Opening Saccus Endolymphaticus. G. Portmann, Bordeaux, France.—p. 309.
Nasal Deformities Following Submucous Resection. J. W. Maliniak, New York.—p. 320.
*Pulmonary Abscess Following Tonsillectomy. A. Ochsner and W. Nesbit, Madison, Wis.—p. 330.
*Laryngeal Complications of Irradiation. L. H. Clerf, Philadelphia.—p. 338.
Secretory Otitis Media: Mucous Type. L. J. Lawson, Evanston, Ill.—p. 346.
Is Mastoidectomy Necessary in Young Children? L. H. Schwartz, New York.—p. 351.
*Disturbance of Optic Nerve Caused by Malignant Disease of Sphenoid: Two Cases. L. E. White, Boston.—p. 361.
Importance of Ophthalmology and Otology in Early Diagnosis of Tumors of Brain. E. R. Carpenter, Dallas, Texas.—p. 366.
Prevention and Minor Symptoms of Sinus Thrombosis. R. Almour, New York.—p. 373.
Septicemia of Otitic Origin via Jugular Bulb. E. R. Roberts, Bridgeport, Conn.—p. 383.
Plastic Surgery. J. E. Sheehan, New York.—p. 385.

Pulmonary Abscess Following Tonsillectomy.—Following the peritonsillar infiltration with procaine, iodized oil taken into the pharynx passed entirely into the tracheobronchial tree in a series of five cases reported by Ochsner and Nesbit. This observation removes the one objection to the aspiration theory of abscess of the lung following tonsillectomy.

Laryngeal Complications of Irradiation.—From observations made by Clerf on the untoward effects of irradiation of the neck, it is evident that these powerful therapeutic agents are potential sources of danger. He says that irradiation has no place in the treatment of recurring papillomas of the larynx in children. It is evident that the use of radium does not exert an inhibitive influence or curative effect on papillomas. Its use should be condemned. Indiscriminate treatment of cancer of the larynx by irradiation should be discouraged. Patients with operable cancer should not be treated except on the advice of the surgeon and radiologist.

Malignant Disease of Sphenoid Causes Loss of Vision.—Malignant disease of the sphenoid was found by White twice in 125 patients. It was associated with gradual unilateral loss of vision. There was little general incapacity or pain until within a month or six weeks of the end. A central scotoma for color was found in one case, and temporal vision was better than nasal in the other. There apparently was not any special pituitary disturbance, pallor of the optic nerves or hemianopsia. Early roentgenograms were negative, while later ones showed destruction of the sphenoid. Optic atrophy

apparently did not occur in either case. The bony barrier between the brain and the nose was gradually broken down by the malignant growth, so that bacteria eventually gained access to the meninges and thus terminated the patient's suffering.

Archives of Path. & Lab. Medicine, Chicago

4: 507-679 (Oct.) 1927

Tumors of Tendon Sheaths, Joint Capsules and Multiple Xanthoma. F. Harbitz, Oslo, Norway.—p. 507.
Spontaneous Recession of Multiple Pigmented Moles. G. L. Rohdenburg, New York.—p. 528.
Effect of High Protein Diet on Kidneys. T. S. Moise and A. H. Smith, New Haven, Conn.—p. 530.
*Acute Suppurative Aortitis Superimposed on Syphilitic Aortitis. O. Saphir and G. W. Cooper, Cleveland.—p. 543.
Effect of Streptococcus Culture and of Diphtheria Toxin on Potency of Insulin. M. M. Harris, A. I. Ringer and M. Lasker, New York.—p. 546.
Simple Method of Testing for Blood Compatibility. J. Felsen, New York.—p. 552.
Adaptation of Electric Refrigeration to Room Temperature Incubation. G. H. Hansmann, Iowa City.—p. 556.
Morphology of Mesenchymal Reactions. A. A. Maximow, Chicago.—p. 557.

Acute Suppurative Aortitis.—In the case reported by Saphir and Cooper, most of the acute lesions of the aorta were found in the aneurysmal dilatation. In addition to these changes, an acute vegetative endocarditis of the aortic valve was disclosed at autopsy. The Wassermann reaction was negative. The blood cultures showed *Diplococcus lanceolatus*. A portal of entry could not be demonstrated. It is of interest that the acute suppurative lesions of the aorta were formed exclusively in the intima and inner portion of the media, which areas are supplied not by the vasa vasorum but by the circulating blood.

Archives Physical Therapy, X-Ray, Radium, Omaha

8: 493-559 (Oct.) 1927

Roentgen-Ray Examination of Kidney in Case of Pain in Upper Right Abdominal Quadrant. B. H. Nichols, Cleveland.—p. 493.
Physical Therapy in Treatment of Athletic Injuries. H. E. Stewart, New Haven, Conn.—p. 501.
Physical and Chemical Therapy of Neurosyphilis. C. Pope, Louisville, Ky.—p. 503.
Ultraviolet Radiation and Calcium Factor in Normal and Pathologic States. E. N. Kime, Indianapolis.—p. 509.
Traumatic Arthritis. E. Margo, Oklahoma City.—p. 516.
Multiple Furunculosis in Infancy: Ultraviolet Ray Therapy. M. L. Blatt, Chicago.—p. 520.
Oxidation. A. J. Mathews, Cincinnati.—p. 524.
Galvanic Technic. J. U. Giesy, Salt Lake City.—p. 530.

Boston Medical and Surgical Journal

197: 651-696 (Oct. 20) 1927

Emancipators. H. Cushing, Boston.—p. 651.
Treatment of Empyema in Children by Closed Method and Suction Drainage. D. W. Parker, Manchester, N. H.—p. 653.
*Subperitoneal Cholecystectomy. L. R. Whitaker, Boston.—p. 657.
Celiac Disease Complicated by Purpura. F. R. Smith, Pittsfield, Mass.—p. 658.

Subperitoneal Cholecystectomy.—Whitaker makes an incision, 2 inches long, through the abdominal wall over the fundus of the gallbladder, which is grasped by an appropriate clamp and pulled up into the wound. A circular incision is then made just below the clamp through the peritoneal covering of the fundus. This is dissected away from the gallbladder in the form of a cuff, and silk traction sutures are placed radially in its upper edge for keeping it open. The top of the peritoneal cuff fills the abdominal opening. There is no necessity for handling the viscera or for packing them out of the field with gauze. Traction is made on the peritoneal cuff and on the gallbladder. The gallbladder is dissected away from its peritoneal covering and from the liver, care being taken to keep close to the gallbladder in order not to injure either of these other structures. To determine whether or not the cystic and common ducts are clear of obstruction, the gallbladder can be opened and its contents removed by sucker, scoop and forceps; it is then washed out with salt solution, iodized oil is injected, pressure exerted and the progress of the oil down the ducts observed by fluoroscope or serial roentgenograms. If this does not seem feasible, the oil can be injected into the cystic duct after the gallbladder is removed. The cystic duct is then clamped, cut and tied. The advantages of the method are very slight exposure of, or traction on the viscera, no packing, adequate protection of the abdominal cavity, and a very small abdominal incision, all of which should result in rapid convalescence, a good cosmetic result and freedom from symptoms due to postoperative adhesions.

Endocrinology, Los Angeles

11: 265-376 (July-Aug.) 1927

*Suprarenal Carcinoma with Pubertas Praecox in Young Boy. M. B. Gordon and E. J. Browder, New York.—p. 265.
*Relation of Certain Glands of Internal Secretion to Development of Atherosclerosis. S. Shapiro, New York.—p. 279.
Replacement of Serum Calcium and Thyroid Gland in Rabbits After Intravenous Injections of Oxalate. H. W. C. Vines, Cambridge, England.—p. 290.
Thyroid Apparatus: XLIX. Water Balance in Conditions of Thyroid and Parathyroid Deficiency. F. S. Hammett, Philadelphia.—p. 297.
*Effects of Testicular Substance Implantations on Glycosuria. L. L. Stanley, San Quentin, Calif.—p. 305.
Interstitial Cells of Leydig in Hermaphrodite Pig. A. H. Davis and G. T. Pack, Tuscaloosa, Ala.—p. 313.
Effect of Thyroid Extract on Bodily Function in Hypothyroidism. C. H. Lawrence, Boston.—p. 321.
Testicular Grafting. W. F. Boukalik and R. G. Hoskins, Columbus, Ohio.—p. 335.
Depressor Substance in Liver Extract. T. C. Burnett, Berkeley-San Francisco.—p. 338.
Blood Sugar Curves in Diabetes Insipidus and Habitual and Experimental Excessive Water Drinking. R. B. Gibson, E. J. Magers and H. Dulaney, Iowa City.—p. 341.

Suprarenal Carcinoma in Boy.—Gordon and Browder report the case of a boy, aged 3 years, who presented symptoms of pubertas praecox, the onset being noticed at the age of 9 months. He was of herculean build, had a mannish voice, acne, pubic hair, light mustache, external genitalia of a boy, aged 16 years, and premature ossification. His mentality was somewhat below that of a child of his actual age. Autopsy showed a carcinoma of the left suprarenal gland which extended into the left suprarenal vein and inferior vena cava with metastases in the lungs. The right suprarenal gland and right suprarenal vein were absent. That portion of the left suprarenal gland not involved by the tumor showed a picture generally found at the time of puberty; the thymus showed involution; the thyroid contained colloid; the pancreas, pituitary and pineal glands were normal. The testes were immature and did not show any spermatogenesis.

Rôle of Endocrines in Atherosclerosis.—Data presented by Shapiro indicate that deposition of cholesterol within the intima initiates the formation of atheromas. Any condition which causes or facilitates such deposition thereby predisposes to the development of atherosclerosis. Deficiency of the thyroid, spleen or gonads each augment hypercholesterolemia and thereby accelerate the consequent formation of atheromas. Suprarenal insufficiency, on the contrary, does not facilitate the development of hypercholesterolemia or atherosclerosis.

Effect of Testicular Implants on Glycosuria.—Cases cited by Stanley seem to indicate that in some instances the output of sugar in the urine is influenced by the implantation under the skin of whole testicular substance from a lower animal.

Journal of Industrial Hygiene, Baltimore

9: 427-474 (Oct.) 1927

*Physiology of Industrial Hygiene: I. Relation of Industrial Fatigue to Gastric Ailments. R. J. S. McDowall, Edinburgh.—p. 427.
*Effect of Noise on Working Efficiency. D. A. Laird, Hamilton, N. Y.—p. 431.
Changes in Blood Picture Under Influence of Lead. B. Kogan and L. Smirnowa, Moscow.—p. 435.
Health Hazards in Cotton Industry. W. F. Dearden, Manchester, England.—p. 453. To be continued.

Physiology of Industrial Hygiene.—McDowall emphasizes the fact that the periods during which food is taken must be periods of real relaxation, and it is most desirable that the taking of food should be preceded and, what is still more important, followed by a rest period. Fatigue physiologically continues the effects of exercise in that it demands blood for the tired tissues as much as did the exercise itself. Thus it becomes evident not only that gastric ailments may promote inefficiency and stress but also that such ailments may be

looked on as having a special significance in industrial fatigue and in general hygiene.

Effect of Noise on Working Efficiency.—Experiments on office conditions seem to indicate that in some instances a move to a quieter workplace may be as good as a rest, there being a difference of 19 per cent in the energy expenditure increment following working in a noisy as compared with a quiet environment. Men and women seemed to be similarly affected, while the more skilled typists were adveresly affected in output to a greater extent than were the mediocre typists. Laird feels that in many nonhospital cases, the phsician could apparently consider the working environment of the patient in cases of obscure neurasthenia and fatigue.

Journal of Infectious Diseases, Chicago

41: 257-328 (Oct.) 1927

*Has Epidemic Encephalitis any Relation to Epidemic Parotitis? E. Gundersen, Oslo, Norway.—p. 257.
*Specificity of Green-Producing Diplococcus in Measles. R. Tunnicliff, Chicago.—p. 267.
*Effect of Drying on Specificity of Scarlet Fever Streptococci. R. Tunnicliff, Chicago.—p. 272.
Improved Automatic Devices for Transplanting Cultures. W. M. Weiner, San Francisco.—p. 276.
*Action of Welch Bacillus Toxin and Other Hemotoxins on Erythrocytes: In Vivo. G. B. Reed, J. H. Orr and C. M. Spence, Kingston, Ont. —p. 283.
Id.: In Vitro. G. B. Reed and J. H. Orr, Kingston, Ont.—p. 289.
Growth of Hemophilic Bacilli with Certain Iron Salts. J. M. Bourn, Chicago.—p. 294.
*Etiology of Measles. R. Degkwitz, Greifswald, Germany.—p. 304.
*Gram-Positive Diplococcus in Human Protozoal Infestations. W. L. Vogel, Los Angeles.—p. 317.

Relation Between Epidemic Encephalitis and Epidemic Parotitis.—In connection with a study of the occurrence of epidemic parotitis in Norway during the last 100 years, Gundersen has dealt with the nervous complications attending parotitis and has discussed the possibility of some relation between it and epidemic encephalitis. He points out that the epidemiologic peculiarities of epidemic encephalitis give reason to suppose that this disease is only a special form of a manifestation of a more widely spread infection. Epidemics of mumps recur regularly every eight or ten years. During these epidemics the occurrence of secondary encephalitis and secondary serous meningitis is observed, and occasionally primary parotitic meningitis without mumps occurs. Epidemic encephalitis occurred in Oslo in 1919 during an epidemic of mumps. The monthly and yearly curves for the two diseases show a striking parallelism. The epidemiologic peculiarities which characterize epidemic encephalitis are also to be found in encephalitis and meningitis of mumps. They show within a limited space of time isolated foci of infection that must, however, be looked on as parts of a prevailing epidemic. They are all typical winter diseases, and they show the same topographic distribution. Clinically, one finds, on the one hand, the combination of mumps with secondary encephalitis or, on the other hand, epidemic encephalitis with parotitis.

Specificity of Green-Producing Diplococcus in Measles.—Further study by Tunnicliff has shown that the green-producing diplococci isolated before the appearance of the rash in measles and during the acute stage of measles are immunologically distinct from nearly all similar cocci isolated during convalescence. Measles cocci grown in normal and immune horse serum dextrose broth lose their specificity, as determined by the opsonic method. Their specificity may be restored by transferring them on blood agar at 36 C. for a few generations. Growing measles cocci at room temperature does not affect their specificity, but growth at from 40 to 41 C. completely removes their specificity, as determined by the opsonic method.

Effect of Drying on Specificity of Scarlet Fever Streptococci.—Tunnicliff states that scarlatinal streptococci appear to lose their specificity through drying, according to opsonic tests. This characteristic seems to be stable for about fifty generations, after transference on to moist blood agar. The drying of streptococci may explain why streptococci isolated from walls and floors of rooms occupied by scarlet fever patients do not belong to the scarlatinal group of streptococci.

Action of Welch Bacillus Toxin on Erythrocytes.—From the data presented, Reed, Orr and Spence conclude that the injection of *B. welchii* toxin into rabbits results in marked destruction of red blood cells, accompanied by definite variations in size. The injection of tetanolysin, staphylolysin, streptolysin and the hemotoxin of pneumococci in doses sufficient to produce an equally marked decrease in circulating red cells does not result in any measurable alteration in the size or the form of the remaining cells.

Etiology of Measles.—According to Degkwitz' experiences, the virus causing measles can be kept alive for several weeks outside the human system if blood from patients with measles is drawn just at the beginning of the rash and diluted in the proportion of from 1:7 to 1:10 with buffered salt solution containing the same number of anions and kations and showing the same p_H as blood. This mixture must be kept at a temperature of zero centigrade. Measles can be produced in human beings with material sterile from a bacteriologic point of view, with sterile blood from a patient with measles drawn at the right time, or with dilutions of such blood, which have passed through a Berkefeld filter. Sterile filtrates of nasal secretions collected in the preeruptive stage of the disease and diluted with physiologic sodium chloride solutions are also capable of producing measles. With sterile filtrates of cultures, reactions which are similar to measles can be provoked in human beings, the specificity of which can be proved by the fact that such persons are later immune against large amounts of infectious blood.

Gram-Positive Diplococcus in Protozoon Infestations.—A hemolytic gram-positive diplococcus, differing immunologically from the hemolytic streptococci and from the diplococcus of pneumonia, was found by Vogel in the intestinal flora of fifty-four of the 119 cases of suspected amebiasis. Protozoa were present in seventy-nine cases, with pathogenic species in fifty-nine, and in these the diplococcus was present in fifty-four (91.5 per cent). Intestinal lesions were produced in inoculated animals, and the diplococcus was recovered in turn from these lesions.

Journal of Lab. and Clin. Medicine, St. Louis

13: 1-100 (Oct.) 1927

Chemical Concept of Origin and Development of Life. V. C. Vaughan, Washington, D. C.—p. 1.
Senile Pruritis Due to Hypersensitiveness. J. Wynn, Indianapolis.—p. 16.
Mental and Neurologic Reactions of Asthma Patients. W. W. Duke, Kansas City, Mo.—p. 20.
Allergic Eczema. W. T. Vaughan, Richmond, Va.—p. 24.
Allergy in Etiology of Disease. A. H. Rowe, Oakland, Calif.—p. 31.
*Allergy and Epilepsy. R. H. Spangler, Philadelphia.—p. 41.
Prophylaxis and Treatment of Hay-Fever and Asthma in Rooms Made Pollen and Dust Free. M. B. Cohen, Cleveland.—p. 59.
*Immunization of Horses to Erysipelas Streptococcus Toxin. J. F. Anderson and G. F. Leonard, New Brunswick, N. J.—p. 64.
Asthma in Children: VII. Skin Testing with Differently Prepared Extracts of House Dust. M. M. Peshkin, New York.—p. 67.
Action of Epinephrine on Cardiac Rhythms. H. L. Otto, New York. —p. 70.
Pathogenic Giardiasis in Children. M. G. Peterman, Milwaukee.—p. 75.
Practical Method of Maintaining Induced Pollen Immunity. I. S. Kahn, San Antonio, Texas.—p. 77.
Use of Resistance Thermometer for Recording Body Temperature. B. Gordon and E. von Stanley, Philadelphia.—p. 78.
Keeping Sterile Serums and Filtrates During the Test Period and Bottling by Gravity. J. P. Scott, Manhattan, Kan.—p. 80.
Simple Hood for Use with Binocular Microscopes. H. W. Wade, Culion Leper Colony, P. I.—p. 83.
Seal for Blood Counting Pipets. R. C. Schleussner, New York.—p. 86.
New Standard for Van den Bergh Test. B. W. Rhamy and P. H. Adams, Fort Wayne, Ind.—p. 87.

Allergy and Epilepsy.—Analysis made by Spangler of 100 consecutive adults with recurring convulsions reveals that in 88 per cent there was a history of allergy in the ancestors. The total number of ancestors showing allergic manifestations, not including convulsions, was 158, and there were fifty-four allergic manifestations, beside the convulsions, in the patients themselves. Gastro-intestinal allergy, as shown by using substitutes for mother's milk, appears to be an important factor in the development of convulsions in the allergic child. In this series of 100 epileptic patients, 32 per cent had convulsions in infancy, of whom twenty-four, or 75 per cent, were bottle fed and eight, or 25 per cent, were breast fed. Food history, i. e., tabulation of all articles of

food ingested, for the purpose of determining and eliminating the sensitizing agent, has been of more clinical value in allergic epilepsy than food skin tests. When the allergen or causative agent cannot be determined in epileptic patients who have an hereditary or personal history of allergy, and in whom a leukocytosis occurs following a convulsion, nonspecific desensitization by venom protein (crotalin) solution, when regulated by the percentage of eosinophil cells in the differential blood count, has proved of value in decreasing the state of allergy.

Concentrated Erysipelas Antitoxin.—Anderson and Leonard have prepared a concentrated erysipelas antitoxin whose use offers many advantages over the nonspecific treatment of the disease. The dominant clinical effect of the specific serum treatment in erysipelas is the prompt improvement in the toxic depression of the patient, followed by a rapid drop in temperature, pulse and respiration, sometimes observed from twelve to eighteen hours after injection of the antitoxin. When adequate doses of the antitoxin are given early in the disease, there is a rapid disappearance and fading of the erysipelas lesions and absorption of the blebs and pitting edema in previously affected parts. When given late in the disease, the temperature and pulse usually decline by lysis, although amelioration of the toxic depression is just as distinct as when the antitoxin is given early in the disease. The average dose of antitoxin used in these cases was 20 cc., each cubic centimeter containing more than 50,000 neutralizing skin test doses. The minimum amount used was 10 cc. and the maximum, 36 cc. In the twenty-four hours following the treatment of thirty-two patients with the antitoxin there was an average drop in temperature of 3 degrees Fahrenheit and a reduction of the pulse rate by 30. The average time after the injection of the antitoxin until discharge from the hospital was six days; the minimum was three days and the maximum, twelve days. Serum sickness developed in about 20 per cent of the cases.

Journal of Preventive Medicine, Baltimore

1: 449-502 (Sept.) 1927

Typhoid in Cleveland, 1873-1926. R. G. Perkins, Cleveland.—p. 449.

Maine Medical Association Journal, Portland

18: 179-200 (Oct.) 1927

Medical Aspect of Gastric and Duodenal Ulcers. J. O. Piper, Waterville.—p. 186.

Medical Journal and Record, New York

126: 465-532 (Oct. 19) 1927

Action of Drugs. J. E. R. McDonagh, London.—p. 465.
Green Goddess: Study in Dreams, Drugs and Dementia. R. Kingman, New York.—p. 470.
Double Spontaneous Pneumothorax. H. F. Gammons, State Sanatorium, Ark.—p. 475.
Treatment of Obesity: Dangers of Thyroid Extract. H. J. John, Cleveland.—p. 476.
Hygienic Aspects of Coffee. R. R. Irvin, Pittsburgh.—p. 481. To be continued.
Chronic Constipation. J. Schneyer, Philadelphia.—p. 484.
Case of Autofellatio. L. J. Bragman, Syracuse, N. Y.—p. 488.
Apomorphine Hydrochloride Administered Hypodermically in Acute Left Chest Distress. J. L. Tracy, Toledo, Ohio.—p. 489.
Therapeutic Action of Manganese Salts. G. L. Piotrowski, Geneva, Switzerland.—p. 490.
Absence and Marked Diminution of Hydrochloric Acid of Gastric Contents in Cancer Involving Organs Other Than Stomach. J. Friedenwald and L. T. Brown, Baltimore.—p. 491.
*Carcinoma of Stomach in Young. V. Knapp, New York.—p. 493.
Cancer: XXIV. Genesis. W. Meyer, New York.—p. 496.
Prevention in Carcinoma of Rectum. A. A. Landsman, New York.—p. 500.
Control of Bleeding in Cancer of Rectum. J. F. Montague, New York.—p. 501.
Radium Treatment of Cervical Cancer. J. Muir, New York.—p. 502.
Radium Treatment of Cancer of Pharynx and Esophagus. J. Guisez, Paris.—p. 505.
Malignant Tumor of Ascending Colon with Metastatic Localization in Skull. J. Buckstein, New York.—p. 506.

Carcinoma of Stomach in Young.—Knapp calls attention to the everpresent menace of cancer, regardless of the age of the patient. His patient was 30 years of age. She had an advanced infiltrating adenocarcinoma of the pyloric region of the stomach with metastases to the lymph nodes in the lesser and greater omenta. Clinically, the diagnosis would have been entirely obscure had it not been that palpation of the abdomen was done while the patient was standing. Attention is called to this very simple and often neglected diagnostic maneuver.

Medicine, Baltimore

6:341-417 (Sept.) 1927

Remedies Recently Introduced in Therapy of Amebiasis. O. Willner, Peking.—p. 341.
Etiology of Pernicious Anemia. B. S. Cornell, Durham, N. C.—p. 375.

Military Surgeon, Washington, D. C.

61: 425-548 (Oct.) 1927

Phases of Army Evacuation. T. R. Goethals.—p. 425.
Romantic Side of Conquest of Yellow Fever. F. A. Winter.—p. 438.
Rebecca and Pig-Man. F. Smith.—p. 453.
Field Service. J. W. Grissinger.—p. 461.
Personality Study of Candidates for Flying. F. H. Poole.—p. 477.

Minnesota Medicine, St. Paul

10: 587-664 (Oct.) 1927

Hay-Fever in Montana. A. R. Foss, Missoula, Mont.—p. 587.
Practicability of Immunization with Combined Soap Toxin. H. L. Eder, Minneapolis.—p. 594.
Scarlet Fever and Diphtheria Prevention Reactions and Observations in Two Thousand Immunizations. D. E. McBroom, Faribault.—p. 596.
Measles Prophylaxis. J. T. Christison, St. Paul.—p. 599.
Pertussis. E. J. Huenekens, Minneapolis.—p. 601.
Heart Block. J. G. Cross, Minneapolis.—p. 604.
Bovin Tuberculosis: Relation to Man. A. S. Anderson, Wabasha.—p. 608.

Missouri State M. Association Journal, St. Louis

24: 487-524 (Nov.) 1927

Practitioner of Medicine and Medical Education. F. C. Waite, Cleveland.—p. 487.
Management of Strabismus. L. Post, St. Louis.—p. 496.
Injuries to Abdomen. O. B. Zeinert, St. Louis.—p. 497.
Hernia in Relation to Industrial Surgery. H. S. McKay, St. Louis.—p. 500.
Workmen's Compensation Act of Missouri. W. L. Small, Kansas City.—p. 504.
Id.: J. H. Caruthers, St. Louis.—p. 506.
Traumatic Injuries of Genito-Urinary System. R. Vinyard, St. Louis.—p. 507.
Movable Cecum and Ascending Colon in Relation to Right-Sided Pain. A. Coughlin, St. Louis.—p. 511.
*Interrupted Continuous Sutures. E. P. Lehman, St. Louis.—p. 513.

Interrupted Continuous Suture.—Lehman describes a suture that combines some of the advantages of both the continuous and the interrupted stitch. A long, single piece of hardened catgut is prepared, placed and tied at one end of the wound in the usual way. It is then carried down the wound as a simple continuous over-and-over suture until three or four stitches have been taken. On the last of these, the end passing through the needle eye is not completely withdrawn from the wound, but a short portion is allowed to project beyond the last wound of entrance. This end is then tied with the double loop on the opposite side of the wound as in the usual method of completing a continuous suture. All three strands, however, are not cut. A single strand projecting from the knot is threaded on the needle. The other two strands are cut. The continuous suture is again begun with this strand, passed three or four times, and tied. Two of the three resulting strands are again cut. This process may be repeated any number of times, depending on the length of the wound.

Nebraska State Medical Journal, Norfolk

12: 361-400 (Oct.) 1927

Obstetric Morbidity in Rural Practice: Analysis of Seven Hundred and Seventeen Pregnancies. H. E. Harvey and D. O. Hughes, Fairbury.—p. 361.
Etiology of Bronchial and Lobar Pneumonia. E. E. Farnsworth, Grand Island.—p. 366.
Pneumonia: Diagnosis. G. W. Covey, Lincoln.—p. 369.
Medical Treatment of Diseases of Chest in Children. H. C. Berger, Kansas City, Mo.—p. 372.
Economics of Practice of Surgery. J. E. Summers, Omaha.—p. 377.
Peritoneum. R. R. Best, Omaha.—p. 379.
Hemorrhage of Newly Born. S. M. Weyer, Wakefield.—p. 382.

12: 401-440 (Nov.) 1927

*Nonspecific Protein (Typhoid Vaccine) Therapy of Disseminated Sclerosis. G. A. Young and A. E. Bennett, Omaha.—p. 401.
University of Nebraska Hospital at Omaha. J. J. Keegan, Omaha.—p. 406.
Sir Joseph Lister and Modern Surgery: 1827-1927. H. W. Orr, Lincoln.—p. 411.

Diabetes in Children. E. S. Wegner, Lincoln.—p. 417.
Traumatic Neurasthenia. T. E. Riddell, Scottsbluff.—p. 418.
Medical Ethics. L. K. Strate, Hastings.—p. 421.
Conquest of Disease. J. M. Willis, McCook.—p. 425.
Cholelithiasis. W. L. Ross, Sr., Omaha.—p. 427.
Vertigo Secondary to Paranasal Sinus Infection. W. A. Cassidy, Omaha.—p. 427.
*Use of Rosenow's Serum in Treatment of Infantile Paralysis. F. Clarke, Omaha.—p. 428.
Tuberculous Peritonitis. W. W. Herrmann, Omaha.—p. 429.

Nonspecific Protein Therapy of Disseminated Sclerosis.—The effects of typhoid vaccine therapy in eight cases of multiple sclerosis were studied by Young and Bennett. One patient developed a complete remission with relief of all subjective symptoms and disappearance of practically all objective symptoms. Three patients developed partial remissions with marked improvement in the subjective symptoms and less in the objective. In three patients the remissions have lasted more than one year. In one, according to the patient's statement, some symptoms are again returning. Four of the patients remained unimproved subjectively, and objectively two of these were of the predominantly spastic type.

Treatment of Infantile Paralysis with Rosenow's Serum.—Clarke reports the seventh case in which he has recognized the condition before the onset of paralysis. All the patients received Rosenow's serum early, before paralysis. All recovered without paralysis. Therefore, it is important that the physician consider the disease as a possibility from June to November in each year; that every case of slight illness in children be regarded with suspicion, and that careful clinical search be made for a possible poliomyelitis.

New Orleans Medical & Surgical Journal

80: 213-278 (Oct.) 1927

*Primary Intrathoracic Malignancy: Eight Cases. J. M. Perret, New Orleans.—p. 213.
Dental Cysts. C. A. McWilliams, Gulfport, Miss.—p. 228.
Radiation Treatment of Nonmalignant Diseases of Female Pelvis. S. C. Barrow, Shreveport, La.—p. 231.
Chronic Barbital Poisoning. E. M. Connely, New Orleans.—p. 235.
Social Hygiene Program. V. Parker, New York.—p. 239.
Breast Tumors. A. C. King, New Orleans.—p. 242.
Preoperative and Postoperative Care of Prostatics. P. J. Kahle, New Orleans.—p. 246.
Determination of Certain Tubal Pathology by Injection of Lipiodol. H. E. Miller and W. F. Henderson, New Orleans.—p. 251.
Toxic Diarrheas of Parenteral Origin. J. A. Crawford, Lake Charles, La.—p. 254.
Hypertension in Chronic Nephritis. K. N. Rayer, New Orleans.—p. 258.

Smoking and Mediastinal Tumors.—Perret reports three cases of primary mediastinal tumor and five cases of primary lung cancer. He was particularly struck by the excessive smoking of many of the patients, and by the fact that all the cases occurred in males.

New York State J. Medicine, New York

27: 1113-1172 (Oct. 15) 1927

Rat-Bite Fever: Causative Organism: Its Use in Treatment of Paresis. S. Bayne-Jones, Rochester, N. Y.—p. 1113.
Mycotic Dermatitis: Superficial Yeast Infections of Glabrous Skin. C. White, Buffalo.
Headache. R. G. Armour, Toronto.—p. 1120.
Diagnosis of Pernicious Anemia. J. A. Lichty, Clifton Springs.—p. 1125.
Treatment of Fibromyoma of Uterus. J. A. Corscaden, New York.—p. 1129.
Contact Between Dermatology and Other Branches of Medicine. C. M. Williams, New York.—p. 1134.

27: 1173-1230 (Nov. 1) 1927

Rambles in Field of Gastro-Intestinal Therapeutics. W. A. Bastedo, New York.—p. 1173.
Office Treatment of Gynecologic Patients. W. T. Dannreuther, New York.—p. 1185.
*Identical Twins and Problem of Heredity. F. P. Twinem, New York.—p. 1192.
Rôle of Dark Field in Diagnosis of Syphilis. J. P. Thornley, F. Vero and S. Halpern, New York.—p. 1194.
Factors Influencing Osteogenesis. J. J. Morton and S. J. Stabins, Rochester.—p. 1197.

Identical Twins and Heredity.—Twinem made a study of nine pairs of identical twins with particular reference to their medical histories. The main facts in regard to each pair of twins are: 1. Both have had diphtheria and marked hypertension. 2. Both had lobar pneumonia at about the same age. 3. Both had an ovarian cyst of about the same size on the same site. 4. Both had scarlet fever and chickenpox in childhood. 5. Both had measles, mumps, whooping cough and chickenpox in childhood. Both are excellent runners. 6. Both had measles, mumps and whooping cough in childhood. 7. Both had measles, mumps, whooping cough and chickenpox in childhood. 8. Both had whooping cough, measles and mumps. 9. Both had measles, whooping cough and chickenpox, and both have had diabetes mellitus for several years. In all these cases, the twins were strikingly alike in temperament and general ability.

Northwest Medicine, Seattle

26: 427-476 (Sept.) 1927

Malaria Treatment of Neurosyphilis in Wagner-Jauregg Clinic. F. J. Clancy, Seattle.—p. 427.
Subphrenic Abscess. L. T. Peery, Berkeley, Calif.—p. 434.
Rheumatic Heart Disease. G. F. Strong, Vancouver, B. C.—p. 444.
Organic and Functional Nervous Disorders. J. R. Llewellyn, Salt Lake City.—p. 449.
Hemorrhoids. A. Crookall, Seattle.—p. 453.
Quartz Light and Diathermy. A. L. Gleason, Great Falls, Mont.—p. 457.
Humanizing Influence of Pestilence. T. W. Todd, Cleveland.—p. 460.

26: 477-526 (Oct.) 1927

Developments of Medical Practice. W. B. Morse, Salem, Ore.—p. 477.
Accomplishments of State Association. D. L. Alexander, Twin Falls, Idaho.—p. 480.
Duodenal Ulcer. E. S. Judd, Rochester, Minn.—p. 482.
Surgical Treatment of Duodenal Ulcer. O. F. Lamson, Seattle.—p. 486.
Peptic Ulcer: End-Results in Surgical Treatment. J. T. Mason, Seattle.—p. 489.
Cripple in Idaho. F. M. Sprague, Pocatello, Idaho.—p. 494.
General Practice of Medicine. E. J. Jasper, Astoria, Ore.—p. 497.
Importance of Rectal Examination. J. R. Numbers, Boise, Idaho.—p. 502.
Drug Store Dermatitis. D. E. H. Cleveland, Vancouver, B. C.—p. 504.
Anatomy of Digestion. T. W. Todd, Cleveland.—p. 507.
Management of Occipitoposterior Positions. R. N. Hamblen, Spokane, Wash.—p. 511.
Dehydration Fever. L. A. Greenwood, Bellingham, Wash.—p. 513.
Fundus Photography. L. G. Dunlap, Anaconda, Mont.—p. 514.

Surgery, Gynecology and Obstetrics, Chicago

45: 577-720 (Nov.) 1927

*Splenectomy. H. Z. Giffin, Rochester, Minn.—p. 577.
*Large Single (Nonparasitic) Cysts of Spleen. E. Novak, Baltimore.—p. 586.
*Primary Streptococcus Peritonitis in Children. J. Schwartz, New York.—p. 590.
*Acute Surgical Diseases of Abdomen in Children. M. Cohen, New York.—p. 595.
*Hexylresorcinol as General Antiseptic. V. Leonard and W. A. Feirer, Baltimore.—p. 603.
*Prevention of Postoperative Peritonitis and Abdominal Adhesions. H. L. Johnson, Boston.—p. 612.
Acute Appendicitis Complicating Pregnancy, Labor and Puerperium: Ten Cases. R. A. Wilson, New York.—p. 620.
Diverticulum of Urinary Bladder. W. S. Pugh, New York.—p. 629.
Sacro-Iliac Subluxation as Cause of Backache. H. H. Cox, Chicago.—p. 637.
*Spinal Anesthesia. J. J. A. McMullin, League Island, Pa.—p. 649.
*The Local Use of Ether in Gynecology. G. De Tarnowsky, Chicago.—p. 653.
Cesarean Section. G. C. Mosher, Kansas City, Mo.—p. 655.
Fundamental Training for Obstetric Nurses. G. W. Kosmak, New York.—p. 665.
Technic for Removing Stones from Upper Urinary Tract. W. E. Lower, Cleveland.—p. 672.
Technic of Gastrojejunostomy Without Clamps. J. H. Woolsey, San Francisco.—p. 674.
*A New Upper Abdominal Incision. G. A. Sloan, Bloomington, Ill.—p. 678.
Avulsion of Diaphragm. W. A. Bryan, Nashville, Tenn.—p. 688.
*Suprapubic Prostatectomy. S. H. Harris, Sydney, Australia.—p. 692.
Ileocecal Intussusception in Infants: Fluoroscopic Findings. V. R. Stephens, Berwyn, Ill.—p. 698.
Abdominoscope. W. O. Sweek, Phoenix, Ariz.—p. 700.
Overhead Suspension in Treatment of Fracture of Femur in Infants. H. D. Sonnenschein, New York.—p. 702.
Coccyx: Derangements and Their Treatment. P. Lewin, Chicago.—p. 705.
*Subperitoneal Drainage. J. B. Bacon, Macomb, Ill.—p. 706.
Postoperative Care of Ollier-Thiersch Skin Grafts; Advisability of Daily Surgical Dressings. E. T. Rulison, Sacramento, Calif.—p. 708.

Splenectomy.—Giffin's paper is a summary of experience with splenectomy. The most important groups of cases are discussed in some detail. In two diseases, hemolytic jaundice and hemorrhagic purpura, the indication for splenectomy depends almost entirely on a satisfactory diagnosis. In all other groups, the decision must be reached in each case by a consideration of the factors and circumstances concerned. In general, the degree of chronic recurrent sepsis as indicated

by the history and clinical data and estimations of hepatic function furnish important indexes for the advisability of splenectomy.

Cyst of Spleen.—Local discomfort and pain radiating to the right shoulder were the main symptoms in Novak's case. A splenectomy was done on the basis of a tentative diagnosis of cyst of the spleen. The postmortem observations verified this diagnosis. The cyst was probably of traumatic origin.

Primary Streptococcus Peritonitis in Children.—Fourteen cases of primary streptococcus peritonitis in children aged 5 and under are reported by Schwartz. In ten of these cases there was the initial infection affecting the upper respiratory tract. Evidently, the peritoneal infection came by way of the blood stream. Vulvovaginitis, by direct extension along the genital tract, was responsible in two cases. Other modes of infection did not suggest themselves in this series. The symptoms were those of peritoneal irritation, namely, pain, vomiting, abdominal tenderness and rigidity, together with high temperature, high white cell count, and prostration. An early exact diagnosis is difficult because the symptoms and signs are often slight and not significant of the disease. The treatment is surgical as soon as the diagnosis is established; supportive therapy must be instituted early. The mortality is very high, 79 per cent in this series; older children are favored with a slightly better chance for recovery.

Acute Surgical Diseases of Abdomen in Children.—Of the 400 children less than 13 years of age studied by Cohen, 367 were admitted for acute inflammatory intra-abdominal conditions. In 354 of these, the diagnosis was acute appendicitis. Thirty-three had intestinal obstruction, in twenty-two caused by intussusception. There were only seven cases of primary peritonitis in the whole series.

Hexylresorcinol as General Anesthetic.—A solution containing 30 per cent of glycerin and 70 per cent of water, in which is dissolved 1 mg. of crystalline hexylresorcinol per cubic centimeter, possesses a surface tension of 37 dynes per centimeter (solution S. T. 37), and represents the optimum composition of the solutions investigated by Leonard and Feirer for the following reasons: It is stable and nontoxic. All the major types of pathogenic micro-organisms are destroyed in less than fifteen seconds on contact with this solution. Its bactericidal power is fully retained (fifteen second standard) in dilutions which are absolutely devoid of irritant action on the most delicate tissue surfaces and in all dilutions likely to be encountered in clinical application, as well as those found in the presence of organic matter. The hexylresorcinol is held in perfect solution in all dilutions. The surface tension of the solution is very low. It is water clear and odorless. It does not attack any of the heavy metals.

Prevention of Postoperative Peritonitis and Adhesions.—Johnson asserts that amniotic fluid is a logical substance to employ for the prevention of adhesions since one of its chief functions in its natural location is the prevention of adhesions between the amniotic sac and the fetus. This fluid sterilized by the Berkefeld filter method is safe for postoperative use in the abdominal cavity. Its action in the peritoneal cavity is the immediate production of a protective layer of fibrin on the peritoneal surfaces and a moderate local leukocytosis, followed later by complete resolution of the fibrinous deposit leaving no permanent injury to the serous surface. Its method of preventing peritonitis is its quick effect in setting up a fibrinous wall of defense together with the stimulation of a moderate local leukocytosis. Its apparent method of preventing adhesions is by stimulating rapid resolution of the plastic exudate through the action of proteolytic ferments which in turn are due to the local leukocytosis. Laboratory and clinical observations have proved beyond any reasonable doubt that the presence of this fluid in the abdominal cavity after operation exercises a distinct beneficial effect against the development of peritonitis and the formation of adhesions without deleterious effect.

Spinal Anesthesia.—McMullin reports his experiences in 392 cases in which spinal anesthesia was used. He feels that it does not fulfil all ideal requirements. It produces excellent relaxation. The intrathecal injection of 2 grains (0.13 Gm.) of procaine hydrochloride dissolved in spinal fluid failed to produce anesthesia in 2.55 per cent of the cases. Spinal anesthesia cannot be relied on for long operations, unless it is supplemented with local or some form of general anesthesia. Procaine hydrochloride spinal anesthesia is safe provided the injection is not made any higher than the second lumbar interspace. McMullin adds the warning that patients under spinal anesthesia are awake and are therefore susceptible to suggestion.

Local Use of Ether in Gynecology.—In ten cases of endocervicitis, De Tarnowsky has injected 20 cc. of sulphuric ether into the uterus with good results. The treatments are repeated twice a week. They are given in the office. In three cases, 1 drachm (3.75 cc.) of ether was injected to produce a therapeutic abortion.

New Upper Abdominal Incision.—The incision described by Sloan preserves the recti and the fibers of their posterior sheaths. It does not interfere in any way with the nerve or blood supply of muscles, aponeuroses or peritoneum. An incision is made through the skin and subcutaneous tissue down to the aponeurosis extending from the ensiform to a point 3.5 cm. above the umbilicus. It is continued outward and downward on either side about 4 cm. below the umbilicus, leaving a V-shaped piece of skin and subcutaneous tissue around the umbilicus. A flap of skin and fat dissected outward exposes the aponeurosis over the inner boarders of both rectus muscles. Then vertical incisions are made through the external sheath of the recti about 1 cm. lateral to their inner borders. The recti with the overlying external sheath, fat and skin are rolled outward and held by suitable retractors. A transverse incision is made through the exposed posterior sheath of the rectus and the peritoneum and extended across the linea alba parallel to the direction of the fibers from the outer edge of one rectus muscle to the outer edge of the other. Lateral and vertical retraction affords an opening with a diameter about equal to the length of the incisions in the anterior sheaths of the recti. The closure of this incision is said to be quite simple, as the transverse fibers have not been severed.

Suprapubic Prostatectomy.—Harris describes his method of removal of the prostate through a 1¼ to 1½ inch incision, using electrically lighted retractors to give a good view.

Subperitoneal Drainage.—The method of drainage proposed by Bacon involves the use of a flanged metal tube extending out through the sigmoid and anus, making an air-tight, aseptic connection with an ordinary bedside drainage apparatus.

Tennessee State M. A. Journal, Nashville

20: 193-230 (Oct.) 1927

Sinus Conditions. F. E. Lejeune, New Orleans.—p. 193.
Sporotrichosis: Two Cases. A. H. Lancaster, Knoxville.—p. 196.
Sedimentation Test in Gynecology. W. T. Black, Memphis.—p. 200.
Ringworm of Feet. H. King, Nashville.—p. 207.
Pros and Cons of Induction of Child Labor by Pituitary Extract. R. McIlwaine, Knoxville.—p. 210.

Texas State J. Medicine, Fort Worth

23: 373-438 (Oct.) 1927

•Visceroptosis as Factor in Neuroses. W. S. Horn, Fort Worth.—p. 383.
Torsion of Abdominal Viscera. H. R. Dudgeon, Waco.—p. 388.
Hyperemesis Gravidarum. R. L. Grogan, Fort Worth.—p. 392.
Toxemia of Pregnancy: Amines, Especially Tyramine, as Factor in Causation of Toxemia. R. A. Johnston and H. W. Johnson, Houston.—p. 394.
Conduct of Normal Labor. J. W. Bourland, Dallas.—p. 397.
Postpartum Care of Parturient Woman. T. F. Bunkley, Temple.—p. 401.
Management of Certain Perforating Wounds of Cornea. E. M. Sykes, San Antonio.—p. 404.
Roentgenology as Science. P. R. Casellas, El Paso.—p. 406.
Prognostic Standards for Heart Disease in Railroad Employees. F. A. Waples, Houston.—p. 409.
Bovine Tuberculosis. W. A. King, San Antonio.—p. 410.
Recent Poliomyelitis Outbreak in Fort Worth, Texas: Epidemiologic Aspects. J. H. Crouch, Fort Worth.—p. 414.
Id.: Clinical Aspect. C. O. Terrell, Fort Worth.—p. 416.
Orthopedic Management of Poliomyelitis. C. F. Clayton, Fort Worth.—p. 417.

New Ptosis Belt.—Horn describes a ptosis belt devised by one of his patients. It consists of two bands of elastic passing from the lumbar spine diagonally forward and downward across the abdomen, to the opposite side below the iliac spine

and to the midline posteriorly at the gluteal fold. These two bands interlace over the lower abdomen between the umbilicus and pubes to give very effective support.

West Virginia Medical Journal, Charleston

23: 505-556 (Oct.) 1927

Experiments on Sino-Auricular Node. M. C. Borman, Montgomery, W. Va.—p. 505.
Infantile Paralysis: Surgical Treatment. R. T. Taylor, Baltimore.—p. 509.
Cancer of Cervix: Treatment. W. S. Gardner, Baltimore.—p. 513.
Coronary Thrombosis. E. H. Funk, Philadelphia.—p. 516.
Carcinoma of Uterus. R. K. Buford, Charleston, W. Va.—p. 523.
Fibroid Tumors: Treatment. W. Neill, Jr., Baltimore.—p. 526.
Glaucoma. L. C. Peter, Philadelphia.—p. 530.
Chronic Progressive Deafness. J. E. McKenzie, Beckley, W. Va.—p. 533.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

2: 251-322 (Oct.) 1927

Dilatation of Bladder and Ureters in Childhood. F. J. Poynton and W. P. H. Sheldon.—p. 251.
*Gaucher's Disease. S. Graham and J. W. S. Blacklock.—p. 267.
*Phosphorus Absorption in Normal and Rachitic Children. G. Murdoch.—p. 285.
Function of Breast Feeding. M. Emslie.—p. 302.
*Frequent Occurrence of Underfeeding in Early Infancy. D. Paterson and A. Marr-Geddes.—p. 315.

Gaucher's Disease.—Five cases of Gaucher's disease are reported by Graham and Blacklock. They believe that the disease is probably a reaction on the part of the reticulo-endothelial system to some abnormal or unwanted product of lipoid metabolism, and that Gaucher's disease, Niemann's disease, and the changes in experimentally produced cholesterolemia and in diabetes with lipemia, fall into the same category, depending on the nature of the lipoids involved.

Phosphorus Absorption by Children.—Murdoch's observations are in keeping with the hypothesis of defective calcium absorption in rickets, while they are directly at variance with the view that phosphorus metabolism is primarily at fault.

Causes of Underfeeding.—A series of 100 underweight infants suffering from gastric symptoms and failure to gain in weight were studied by Paterson and Marr-Geddes. Of these 100 patients studied, 84 per cent were not receiving sufficient calories, 3 per cent were overfed and 13 per cent were being starved, the cause being either organic (congenital pyloric stenosis) or functional (ruminations). The authors conclude that the chief cause of gastric symptoms and failure to gain in weight in hospital outpatient infants under 6 months is starvation.

Australian J. Exper. Biol. & M. Science, Adelaide

4: 125-190 (Sept. 16) 1927

*Comparison of Utilization of Nucleic Acids of Animal and Vegetable Origin. T. B. Robertson, C. S. Hicks and H. R. Marston.—p. 125.
*Basal Metabolism of Man on Diet Rich in Nucleic Acid. C. S. Hicks.—p. 151.
Compensatory Renal Hypertrophy. G. R. Cameron and C. H. Kellaway.—p. 155.
Orientation of Mitochondria in Surface Cytoplasm of Infusorians. E. S. Horning.—p. 187.

Metabolism of Nucleic Acid.—Nucleic acids of vegetable and animal origins have been successfully administered by Robertson et al. to the same human subjects, subsisting on an otherwise purine-free diet. Animal nucleic acid is slightly less well absorbed from the alimentary canal than nucleic acid of vegetable origin, but, estimated by the fecal phosphates, the difference of absorption between the two types of nucleic acid is not great. On the other hand, the output of uric acid after vegetable nucleic acid is far in excess of that excreted after nucleic acid of animal origin has been ingested. It is inferred that nucleic acid of the vegetable type is decomposed more rapidly or more completely into its constituents than nucleic acid of the animal type. The administration of the dosage of nucleic acid employed in these experiments (15 Gm. daily) leads to a demonstrable deficiency of kidney function. Administration of nucleic acid of vegetable or animal origin by mouth leads to the appearance in the urine of some substance or substances other than creatinine, which react with impure picric acid in alkaline solution, but do not react with picric acid which has been purified by recrystallization from benzene. No leukocytosis or alteration of the differential white cell count is induced by the oral administration of either form of nucleic acid. The effect of yeast in inducing leukocytosis is therefore not attributable to its content of nucleic acid. On an equal nitrogen intake, meat is preferable to vegetables if one desires to reduce the production of uric acid from the diet.

Basal Metabolism on Purine-Free Diet.—The basal metabolism of a human subject on a purine-free diet, with the addition of nucleic acid of plant and animal origin, has been studied by Hicks. No significant alteration was noted.

British J. Children's Diseases, London

24: 165-248 (July-Sept.) 1927

*Sexual Differentiation in Susceptibility to and Mortality from Whooping Cough in Children Under Five Years. M. Young and W. T. Russell.—p. 165.
*Insulin Treatment of Diabetes Mellitus in Children. K. U. Toverud.—p. 185.
Hemiplegia Associated with Extensive Nevus and Mental Defect: II. T. Brushfield and W. Wyatt.—p. 209.
Functional Cardiac Disorders. E. Bronson.—p. 214.
Treatment of Ringworm with Thallium. J. H. T. Davies.—p. 219.

Sex and Mortality from Whooping Cough.—Young and Russell stress the point that the mortality from whooping cough the world over is higher in female than in male children, and that there apparently exists some sexual differentiation in immunity to the disease and its complications for which an analogy can be found only in some diseases, such as chorea and goiter, that occur at a later period of life, and appear to affect the female sex more frequently and with a greater fatality than the male.

Insulin Treatment of Diabetes in Children.—Toverud presents the results of four years' insulin treatment of diabetes mellitus in forty-seven children. An hereditary factor was present in only eight cases. Preceding infections, mostly in the upper respiratory tract, were present in twelve cases. All the patients received three injections of insulin daily. End-results will be published later.

British Medical Journal, London

2: 527-574 (Sept. 24) 1927

*Routine Examination of Cerebrospinal Fluid in Syphilis. C. H. Mills.—p. 527.
Epidemic Encephalitis: I. Epidemiologic Considerations. I. McKenzie.—p. 532.
Id.: II. Pathology of Epidemic Encephalitis. J. G. Greenfield.—p. 535.
Id.: III. Chronic Encephalitis. G. Riddoch.—p. 537.
Id.: IV. Mental Aspects of Epidemic Encephalitis. R. M. Marshall.—p. 539.
Id.: V. Independence of Bradykinesia and of Hypertonus in Respect to Parkinsonism. R. Cruchet.—p. 541.
Optimal Rhythm in Mammalian Heart and Action of Cardiac Nerves. J. A. MacWilliam and G. S. Melvin.—p. 544.
Mechanism of Voluntary Muscular Fatigue. C. Reid.—p. 545.
Modes in Which Drugs Have Been Introduced. W. J. Dilling.—p. 546.
Traumatic Rupture of Malignant Ovarian Cyst. H. Jaffé.—p. 549.
Congenital Occlusion of Small Intestine. B. Shea.—p. 549.
Case of Scleroderma. A. W. Tibbetts.—p. 549.
Pityriasis Rosea: Second Attack. B. G. Edelston.—p. 549.
Closure of Abdominal Incisions. H. Keith.—p. 550.
Congenital Tumor of Breast. C. N. Twining.—p. 550.
Relation of Municipalities to Voluntary Hospitals: I. H. L. Eason.—p. 575.
Id.: II. Poor Law Hospital as Factor in Public Health. M. A. Reynard.—p. 578.
Acute Pneumonia in Early Childhood: I. Incidence and Mortality. C. McNeil.—p. 582.
Id.: II. Pathology. A. R. Macgregor.—p. 584.
Historical Aspect of Quackery. A. J. Clark.—p. 589.
Treatment of Burns. A. MacLennan.—p. 590.
Abdominal Fat Metabolism: Case. J. A. Torrens, H. Gainsborough and J. A. Gardner.—p. 591.
Study of Ephedrine. K. K. Chen.—p. 593.
*Essential Hematuria. N. Tregear.—p. 593.
*Nose Bleeding Treated by Morphine. S. B. Wigoder.—p. 594.
*Apparent Infectivity of Cancer. J. MacLeod.—p. 594.
Actinotherapy in Joint Tuberculosis in Childhood. W. E. Crosbie and R. Aidin.—p. 594.
Paroxysm of Auricular Fibrillation. E. C. Brewis.—p. 595.
Atresia of Vagina with Menses Retained to Age of Twenty-Six Years. A. Gough.—p. 595.
Inversion of Uterus. C. C. Elliott.—p. 595.
Subcutaneous Drainage of Ascitic Fluid. D. N. Kalyvanvala.—p. 595.

Routine Examination of Cerebrospinal Fluid in Syphilis.—Mills urges routine examination of the cerebrospinal fluid because it is absolutely essential in the management of syphilis. He reports the results of the first examination of 1,601 cases. Of these, 283 were primary cases. Of 147 patients with a negative blood Wassermann reaction, seven had pathologic cerebrospinal fluid. Of 136 patients with a positive blood Wassermann reaction, eighteen had pathologic cerebrospinal fluid. Of 768 secondary cases, 559 were previously untreated. Of these, 178 showed pathologic cerebrospinal fluid. Of sixty-two patients previously treated, showing a relapse of the blood Wassermann reaction within two years, but without clinical signs, twenty-seven had pathologic cerebrospinal fluid. Of 147 previously treated cases exhibiting clinical relapses of a "secondary" nature, sixty-nine showed pathologic cerebrospinal fluid. In the 1,051 primary and secondary cases, 299 showed abnormal cerebrospinal fluids. The total number of tertiary cases seen was 463. Of 330 cases exhibiting active gummatous lesions, 106 showed pathologic cerebrospinal fluid. Of 133 patients with positive blood Wassermann reactions in whom no active gummatous processes could be discovered, forty-one had pathologic cerebrospinal fluid. The total number of patients with congenital syphilis (adults) examined was eighty-seven, of whom twenty-three were found to have abnormal cerebrospinal fluids.

Essential Hematuria.—Tregear reports a case in which the onset in three out of the four attacks was definitely associated with a sudden change in the temperature. In the first two attacks, a high temperature was rapidly lowered by cold baths, and in the fourth, the patient went from a comparatively cool climate to a very hot and humid one in an hour and a half.

Morphine for Nosebleed.—Wigoder asserts that the hypodermic injection of one-half grain (0.032 Gm.) of morphine quickly controls bleeding from the nose, irrespective of the cause.

Infectivity of Cancer.—MacLeod reports the case of a man who was an indulgent pipe smoker, renewing an attractive and expensive type of pipe every few weeks. He had business dealings with A, B and C, and presented each with one of these used pipes. Unknown to all concerned, he was suffering from cancer of the stomach, and died within a year. Within the next two or three years A, B and C all died of cancer—A of the tongue and jaw, B of the stomach, and C of the bowel. One of A's family has subsequently died of cancer and another of so-called acute pancreatitis, while two surviving members were suffering from duodenal stenosis.

Glasgow Medical Journal

108: 193-248 (Oct.) 1927

*Hodgkin's Disease, with Paraplegia: Case. J. Carslaw and J. S. Young.—p. 193.
*Treatment of Aneurysm of Common Carotid Artery. J. E. Paterson.—p. 207.
Chocolate-Colored, Cholesterol-Containing Pleural Effusion: Case. T. K. Monro.—p. 213.
Two Cases of Pseudochylous Effusion. J. Carslaw.—p. 215.
Balance of Calcium, Magnesium, Phosphorus, and Sulphur in Case of Osteitis Deformans. D. P. Cuthbertson.—p. 218.

Hodgkin's Disease with Paraplegia.—In the case reported by Carslaw and Young, there was lymphadenomatous infiltration of the lungs, kidneys, liver, spleen and the mucous membrane of the bowel. Paraplegia developed from infiltration of the vertebrae and the membranes of the spinal cord. The interesting feature of the case was that nodules of lymphadenomatous tissue made their appearance in situations in which lymphoid tissue is not found in the healthy state.

Aneurysm of Common Carotid Artery.—Following a blow in the neck, Paterson's patient developed an aneurysm at the bifurcation of the left common carotid artery. It was about the size of a tangerine orange, and obvious expansile pulsation was present. The operation of proximal ligation by Perthes' method was carried out. Eight months after operation, only a small firm mass was present at the site of the aneurysm; it suggested a hard enlarged gland, and was about the size of a cherry. Above it, both external and internal carotids could be felt pulsating, making it probable that a circulation was being carried on between these two vessels by way of the shrunken sac. The patient complained of some numbness of his right hand, but nothing whatever in the way of sensory or motor objective symptoms was present. Mentally, he was normal.

Irish Journal of Medical Science, Dublin

6: 353-556 (Aug.) 1927

*Rotunda Lying-In Hospital Report for 1925-1926. G. Fitzgibbon, R. M. Corbet and N. M. Falkiner.—p. 353.
*Coombe Hospital Report, 1925. L. Cassidy, G. F. Duggan and A. W. Courtney.—p. 398.
*National Maternity Hospital: Report. P. T. McArdle, M. P. Fay and M. Downey.—p. 516.
Diagnosis of Fetal Death in Utero. J. S. Quin.—p. 537.
Postpartum Hemorrhage. B. Solomons.—p. 539.

Work of Rotunda Lying-In Hospital.—From November, 1925, to October, 1926, 2,141 patients were admitted to the maternity wards of the Rotunda Lying-In Hospital, and 2,007 women were attended in their own homes. These cases are analyzed by Fitzgibbon et al. from the obstetric point of view. There were only thirteen deaths in the whole service. These occurred in the hospital group. Included among the deaths is one from cardiac disease early in pregnancy and one from eclampsia. One patient died as the result of a ruptured uterus, having been admitted several hours after rupture had occurred with a neglected shoulder presentation, and one patient died suddenly after having left the hospital, apparently quite well after a normal confinement.

Maternity Work at Coombe Hospital.—The reports in 962 maternity cases admitted to the Coombe Hospital are analyzed by Cassidy et al. The maternal deaths numbered thirteen.

Work of National Maternity Hospital.—McArdle et al. analyze the records in 1,512 maternity patients delivered in the National Maternity Hospital and its extern department. There were fourteen deaths. Of these, seven were from puerperal sepsis; two from pneumonia; two from chronic parenchymatous nephritis; one from placenta praevia; one from auricular fibrillation, complicated by concealed accidental hemorrhage, and one from Vincent's angina.

J. Obst. & Gynec. of British Empire, Manchester

34: 469-700 (Autumn) 1927

Ovulation in Human Ovary. W. Shaw.—p. 469.
Obstetrics in China in Thirteenth Century. P. Maxwell.—p. 481.
Old Chinese Drugs Used in Obstetric Practice. B. E. Read.—p. 498.
Results of Breech Labor and of Prophylactic External Cephalic Version During Pregnancy. G. F. Gibberd.—p. 509.
Relative Merits of Instrumental and Medical Methods of Inducing Labor. J. Hewitt, D. Towart and D. Baird.—p. 520.
*Case of Pelvic Myxoma. A. Gough.—p. 528.
Large Solid Ovarian Tumor with Twisted Pedicle. A. Gough.—p. 530.
Labor in Case of Thoracopagus Monster. R. A. Lennie.—p. 532.

Large Extrapelvic Myxoma.—The tumor in Gough's case originated in the pelvic cavity and extended in several directions: (1) through the abdominal wall into the groin; (2) through the anterior part of the pelvic floor at the side of the vagina, reaching the labium majus, and (3) through the posterior part of the pelvic floor into the buttock. The tumor in the left labium majus formed a huge pedunculated mass hanging down nearly as far as the knees. The vertical measurement from the pubic spine downward was 11 inches. The circumference of the upper constricted part was 15½ inches; that of the lower part, 22 inches. The tumor in the left buttock was the size of an adult head.

Journal of Tropical Medicine and Hygiene, London

30: 257-272 (Oct. 15) 1927

*Alternative Treatment of Malignant Tertian Malaria in Quinine Susceptible Patients. G. R. Ross.—p. 257.
Blood and Tissue Changes in Cancer. J. A. Shaw-Mackenzie.—p. 263.

Treatment of Malaria with Mercurochrome.—Treatment with small doses (from 2 to 5 cc.) of mercurochrome was successful in five out of six cases of malignant tertian malaria, in producing a period of clinical improvement and freedom from peripheral parasites. Two of the five, however, relapsed within a short period, but the remaining three, according to Ross, remained free from further manifestations of the disease during the period of observation. Three of the

patients in whom quinine treatment of earlier attacks had been followed by hemoglobinuria were improved by mercurochrome without hemoglobinuria occurring.

Lancet, London

2: 637-688 (Sept. 24) 1927

Pulmonary Syphilis: Five Cases. F. E. Tylecote.—p. 637.
*Phimosis and Dysuria in Infancy. A. J. C. Hamilton and D. S. Middleton.—p. 639.
*Carrier of Virulent Diphtheria Bacilli: Treatment. E. H. R. Harries, W. M. MacFarlane and F. B. Gilhespy.—p. 646.
Treatment of Diabetes by Synthalin. E. G. B. Calvert.—p. 649.
Mixed Tumors of Molar Glands. L. R. Fifield.—p. 652.
Gonorrheal Urethritis in Male Children. B. B. Sharp.—p. 653.
Complete Absence of Gallbladder and Extrahepatic Bile Ducts: Case. N. H. Hill.—p. 654.

Treatment of Dysuria in Infants.—Hamilton and Middleton report that in 103 cases of dysuria in children of the napkin age, presenting the signs and symptoms of ammoniacal irritation, boric impregnation of the napkins has resulted in rapid cure almost without exception. Their method is as follows: All napkins are boiled thoroughly and then dried. A dessertspoonful of boric crystals is added to a breakfast cupful of boiling water. The dried napkins are soaked in this solution, then wrung out and hung up to dry. The napkin area of the skin is kept clean and dry, and napkins are changed frequently.

Tonsillectomy for Diphtheria Carriers.—Harries et al. report on the removal of the tonsils and adenoids of ninety diphtheria carriers. Seventy-six became negative at once. Diphtheria vaccines did not show any results of value.

2: 689-740 (Oct. 1) 1927

Early Symptoms of Disease: Eye. A. M. Ramsay.—p. 689.
*Juvenile General Paralysis Successfully Treated by Malaria and Intravenous and Intrathecal Injections. D. Nabarro.—p. 692.
*Carbuncle of Kidney: Case. T. Thompson.—p. 695.
Simultaneous Bilateral Artificial Pneumothorax. A. I. G. McLaughlin and G. Fildes.—p. 698.
Fibrocystic Disease of Lung. P. J. Kerley, L. R. Shore and W. A. Young.—p. 699.
*Familial Disseminated Sclerosis. C. E. Allen.—p. 701.
Persistent Auricular Fibrillation in Child of Six. D. G. Leys and H. B. Russell.—p. 702.
*Carcinoma of Cheek. N. Patterson.—p. 703.

Malaria Treatment of Juvenile General Paralysis.—Nabarro reports a case of juvenile general paralysis successfully treated by malaria and intravenous and intrathecal injections. The patient's mental and physical condition show an amazing improvement and the serology of the blood and spinal fluid have progressed far toward normality. An important point which this case brings out is that even after a year's prolonged treatment by various methods, the child's condition was apparently no better than when treatment was first begun.

Carbuncle of Kidney.—Thompson's patient had a bad carbuncle of the neck during January, 1926. This was incised and the pus evacuated, and a steady recovery ensued. While convalescing she took a sea voyage, during which, at the end of the first week in February, 1926, she knocked her left loin rather severely against a bunk. Ten days later she was taken ill with severe pain in the left side, high temperature, and general malaise. There were no urinary symptoms. The patient continued to have an irregular temperature and complained of intense pain in the left side of the abdomen and loin; her general condition became worse. There were occasional rigors. The anterior abdominal wall and the muscles of the back on the left side were rigid, and there was great tenderness on palpation. Deep in the left loin, an ill defined tender swelling could be felt. No other abnormal physical signs were detected. A roentgenogram of the renal tract showed a normal kidney shadow on the right side, and an ill defined shadow in the left loin, which looked like an enlarged kidney. The urine revealed nothing abnormal on analysis. The swelling rapidly increased in size, a diagnosis of perinephric abscess was made, and the left kidney was explored. A perinephric abscess was opened and drained, and when the kidney was inspected, its lower pole was found to be bulged out by an ill defined indurated swelling. Nephrectomy was performed and the wound drained. The pus from the abscess was found to contain *Staphylococcus aureus* in pure culture.

Familial Disseminated Sclerosis.—Allen reports three cases occurring in three members of one family. Two of those complained of root pains, which are uncommon in disseminated sclerosis.

Carcinoma of Cheek.—After exposing the tumor freely on the outer aspect of the cheek, Patterson removes it with the diathermy knife or the saw from within the mouth. There is then a large hole in the cheek caused by the removal of the tumor. The skin flap is turned down and stitched in position. There has been no tendency to sloughing of the skin in the two cases in which Patterson has performed this operation.

South Africa Medical Association Journal, Cape Town

1: 465-492 (Sept. 24) 1927

Peameability of Fallopian Tubes. G. Lange.—p. 466.
Diphtheria. N. Wilson.—p. 469.
Mesenteric Cyst: Successful Resection of Small Intestine with Cyst. J. J. Levin, L. E. Ellis and F. W. Simson.—p. 471.
Bone Grafting. J. H. H. Greef.—p. 474.
Preventive Treatment of Dental Caries in Children. E. Calder.—p. 475.
*Sarcoma of Stomach. J. F. Jefferies.—p. 478.
Case of Keratomalacia. E. A. Seale.—p. 479.

Sarcoma of Stomach.—Jefferies reports a case of sarcoma of the pyloric end of the stomach in a man, aged 31. The diseased area was removed between clamps; the upper end of the duodenum and the proximal end of the cut stomach were closed. The pouch of stomach was then anastomosed by a posterior gastro-enterostomy to the jejunum—Billroth II gastrectomy. The patient made an uneventful recovery following the operation, and left the hospital a few weeks later. Two and a half months after the operation, at least four lumps could be seen as well as felt projecting from the liver. The abdomen was full of ascitic fluid. He looked cachectic and anemic, despite the fact that he had a good appetite and was free from all stomach pain.

Tubercle, London

9: 1-56 (Oct.) 1927

*Blood Sedimentation Tests and Nuclear Indexes in Tuberculosis. S. L. Cummins and C. M. Acland.—p. 1.
Tuberculous Epididymitis. R. H. O. B. Robinson.—p. 9.
Sanatorium Provision for Pregnant Tuberculous Woman. A. M. Hill.—p. 13.
Special Aspects of Declining Tuberculosis Death Rate in United States. L. I. Dublin and G. H. Van Buren.—p. 22.

Blood Sedimentation Tests and Nuclear Indexes in Tuberculosis.—While neither the sedimentation test nor the nuclear index provides new information unobtainable by ordinary clinical observations, Cummins and Acland assert that they afford two additional methods of measuring the constitutional balance in a case before, during and after treatment. The temperature, the weight, the amount and bacillary content of the sputum and the vital capacity are all ponderable factors which refuse to accommodate themselves to the optimism of the patient or the therapeutist. To these may be added the blood sedimentation test and the nuclear index, which are equally uncompromising and which should, therefore, be of great utility in the study of new methods of treatment.

Tohoku J. Exper. Med., Sendai Japan

9: 111-294 (Sept. 12) 1927

Pharmaceutic Preparations of Digitalis Group. K. Yamanouchi.—p. 111.
*Internal Secretion of Pancreas: VI. K. Kozuka.—p. 130.
Effect of Epinephrine, Intravenously Administered, on Epinephrine Output from Suprarenal Body. T. Sugawara, S. Saito and M. Nemoto.—p. 149.
Influence of Various Drugs on Physiologic Reactions Caused by Progressive Dilution of Oxygen: II. R. Yosomiya.—p. 207.
Id.: III. R. Yosomiya.—p. 229.
Effect of Strychnine on Rate of Epinephrine Output from Suprarenal Glands of Dogs. M. Watanabé.—p. 251.
Fluid Exchange in Tissues: III. Origin of Venous Stasis Edema and Its Resorption by Persons with Normal and Diseased Kidneys. T. Yamaguchi.—p. 274.

Internal Secretion of Pancreas.—Kozuka isolated a blood sugar lowering substance from the urine of normal persons. It was variable in amount. Diabetic persons do not have this substance until after the urine has been freed of sugar by the administration of pancreas hormone. This observation is regarded as an aid in the diagnosis of diabetes.

Annales de Derm. et de Syphiligraphie, Paris

6: 457-520 (Aug.-Sept.) 1927

Melanotic Cancer in Xeroderma Pigmentosum. J. Nicolas, M. Favre and D. Dupasquier.—p. 457.
*Examination for Spirochetes in Chancre in Course of Antisyphilitic Treatment. M. Kitchevatz.—p. 473.
Intense Primula Dermatitis of Bulbous Form. P. Giacardy.—p. 485.
*Syphilitic Leukoplasia of Uterus and Cancer. P. Mériel.—p. 489.

Examination for Spirochetes in Chancre in Course of Antisyphilitic Treatment.—The effects of treatment in twenty syphilitic chancres were followed. Clinical diagnosis was confirmed by dark field examination and on the same day the patients received the first injection of 0.15 Gm. of neoarsphenamine. In general, the treatment consisted of one injection of neoarsphenamine and two injections of mercury a week. No local treatment was given. As a practical criterion of the disappearance of spirochetes, Kitchevatz established two negative examinations with a one-day interval. In thirteen of nineteen patients with syphilitic chancre, the organism was found from one to four days after an injection of 0.15 Gm. of neoarsphenamine; in six the second examination was negative. Of these six patients, one later gave a positive result. Examinations made at seven to ten day intervals might be of practical value for the recognition of resistant cases at the beginning of treatment.

Syphilitic Leukoplakia of Uterus and Cancer.—Serologic investigations have shown that the influence of syphilis as a cause of cancer of the uterus far exceeds what has been supposed (50 per cent positive Wassermann reactions). Leukoplastic alterations of the cervix, and, perhaps, of the body of the uterus are very often present in women affected with uterine cancer. There exists a pure leukoplakia, not yet cancerous, of the cervix, quite similar to that of the tongue. Like that of the tongue, it is syphilitic. Indications seem to be that syphilis of the uterus goes on to cancer as does syphilis of the bucco-lingual mucosa, through the intermediate step of leukoplakia. It is probable that such an initial process plays an essential rôle in the pathogenesis of a great number of uterine cancers.

Annales de l'Institut Pasteur, Paris

41: 919-1044 (Sept.) 1927

Streptococcic Hemolysin. E. Césari, L. Cotoni and J. Lavalle.—p. 919.
Vitamins and Mineral Nutrition of Living Cell. M. P. Mazé.—p. 948.
*Treating Trypanosomiasis with Tryparsamide. G. Le Dentu.—p. 982.
Focus of Oriental Sore in Greece. G. Blanc and J. Caminopetros.—p. 1002.
Relative pH of Mammalian Tissue in Vivo; Possible Rôle in Genesis of Tumors. E. Harde and P. Henri.—p. 1022.
Research on Phosphorus in Serum. M. Macheboeuf.—p. 1036.

Treating Trypanosomiasis with Tryparsamide.—Treatment of the second stage of trypanosomiasis with tryparsamide gives a very high percentage of apparent cures; 62.5 per cent in patients who had been without medication during a period varying from nine to twenty-four months. These successful results were obtained with relatively small doses (totaling about 25 Gm. for an adult weighing 50 Kg.). Previous atoxyl treatment does not interfere with the action of tryparsamide nor create a very marked arsenic resistance. An inefficacious tryparsamide treatment provokes a very clear arsenic resistance. In some cases, good effects are obtained from a mixed treatment.

Annales des Maladies Vénériennes, Paris

22: 641-720 (Sept.) 1927

*Pernicious Anemia and Syphilis. F. Wyss-Chodat.—p. 641.
Syphilitic Sterility. J. E. Marcel.—p. 655.
Two Cases of Soft Chancre from One Source of Infection and Presenting Similarities. M. Kitchevatz.—p. 675.
*Prolonged Incubation of Syphilitic Chancre. B. Valverde.—p. 678.

Pernicious Anemia and Syphilis.—Wyss-Chodat presents a case in which the parallel evolution of syphilis and pernicious anemia, the diagnosis of which was confirmed by histologic examination at necropsy, may be followed.

Prolonged Incubation of Syphilitic Chancre.—Valverde observed three instances of prolonged incubation of syphilitic chancre, one of sixty-eight, one of thirty-two and one of thirty-nine days. Two factors seem to explain prolonged incubation: the influence of prior antisyphilitic treatments, even simple prophylactic applications, and the condition of immunity conferred by heredosyphilis.

Bulletin de la Soc. des Sciences Méd., Montpellier

8: 387-482 (Sept.) 1927

Ovarian Cyst with Twisted Pedicle with Internal Hemorrhage. Forgue, Mourgue-Molines and Turot.—p. 387.
*New Heart Remedy: Marrubium. Pagès and Comte.—p. 389.
*Acute Rapidly Fatal Pulmonary Gangrene from Novarsphenamine. P. Pagès.—p. 395.
Alkali Reserve of Blood in Children. E. Leenhardt and J. Chaptal.—p. 399.
Surgical Treatment of Pulmonary Tuberculosis. Forgue and Mourgue-Molines.—p. 411.
Relative Indications for Artificial Pneumothorax, Phrenicectomy and Thoracoplasty. Gaussel.—p. 416.
Phrenicectomy in Treatment of Tuberculosis. L. Baillet.—p. 418.
*Action of Ultraviolet Radiations on Alkali Reserve in Infancy. E. Leenhardt and J. Chaptal.—p. 425.
Origin of Cicatricial Tissue. E. Grynfeltt and H. J. Guibert.—p. 428.
Case of Severe Infantile Tetanus Cured by Purified Serum. Leenhardt, Reverdy and Chaptal.—p. 432.
Acute Myelitis After Smallpox Vaccination: Flaccid, Later Spasmodic, Paraplegia: Cure. Vedel, Puech and Lapeyrie.—p. 436.
Case of Osteochondritis of Hip. G. Lauze.—p. 441.
Acidosis and Gastro-Intestinal Disturbances in Infancy. Leenhardt and Chaptal.—p. 442.
Lesion of Ependyma in Mucocytic Degeneration of Nerve Centers. E. Grynfeltt.—p. 450.
Differences of Potential in Histology and Value of J. L. Pech's Index of Nutrition. J. Turchini.—p. 460.
Acidosis and Hypothrepsia in Infancy. Leenhardt and Chaptal.—p. 462.
Acidosis and Rickets. Leenhardt and Chaptal.—p. 465.
Cancer of Lung Diagnosed as Pulmonary Gangrene. Vedel, Puech and Lapeyrie.—p. 469.
Inguinal Metastasis of Melanotic Cancer of Great Toe. Forgue, Mourgue-Molines and Turot.—p. 472.
Therapeutic Use of Radon. Vedel, Puech and Castagné.—p. 477.

New Heart Remedy: Marrubium, Its Action on Extrasystolic Arrhythmia.—An extract of marrubium was found by Pagès and Comte to exert a favorable action on extrasystolic arrhythmia. Digestive extrasystoles are most benefited but ventricular extrasystoles are also susceptible to this treatment. Auricular tachysystole and fibrillation were improved in some cases. The action of marrubium seems comparable to that of quinidine. No contraindication revealed itself. Marrubium probably owes its favorable effects on extrasystolic arrhythmia to a cardiotonic action operating through the vegetative nervous system.

Acute, Fatal Pulmonary Gangrene from Neoarsphenamine.—Pagès reports a case of acute pulmonary gangrene from neoarsphenamine, appearing in the course of treatment. This occurrence would seem to indicate that the theory of spirochetosal gangrene does not fit all cases; however, there may be an exaltation of the pathogenic power of the spirochete, as in syphilis.

Action of Ultraviolet Radiations on Alkali Reserve in Infancy.—The action of ultraviolet rays on the alkalinity of the blood was investigated by Leenhardt and Chaptal in twenty-one cases, both normal and pathologic. Under the influence of irradiation the alkali reserve increases constantly and rapidly, but not always in proportion to the time of exposure. In normal children it tends to reach the adult value. In acidosis of the dystrophic conditions of childhood, it is more sensitive and by arresting the activity of the pathologic process proves the causal rôle played by acidosis in these diseases. Ultraviolet rays seem to affect the whole organism, provoking an improvement in the mechanism of nutritional exchange, which makes for a better utilization of the materials and a decrease of the acid products of waste. Ultraviolet rays have high therapeutic value in tetany.

Gazette Hebdomadaire des Sciences Méd. de Bordeaux

48: 561-576 (Sept. 4) 1927

Reduction in Number of Cervical Vertebrae (Klippel-Feil Syndrome with Multiple Anomalies). E. Loubat, Cloup and Henri-Fischer.—p. 563.
*Sodium Citrate Treatment of Hemorrhages During Prostatectomy. L. Dax.—p. 565.

Sodium Citrate Treatment of Hemorrhages During Prostatectomy.—In two cases of hemorrhage in the course of prostatectomy and in a cystotomy, Dax gave intravenous injections of 25 cc. of sodium citrate and obtained immediate

cessation of bleeding. Rectal and oral administration are inefficacious. In the second case subcutaneous injection was tried, but without result. From 20 to 30 cc. of the following solution should be injected intravenously; sodium citrate, 20 Gm.; magnesium citrate, 10 Gm.; distilled water, 100 Gm. The solution should be filtered and sterilized in the autoclave. Magnesium citrate is included in this formula to obviate the hypertensive action of sodium citrate. The solution must be used immediately after being prepared, as it becomes toxic when old.

Journal de Chirurgie, Paris

30: 129-240 (Aug.) 1927

*Section of Anterolateral Column of Spinal Cord. Robineau and P. Banzet.—p. 129.
Trephining of Corpus Callosum. Desgouttes and R. Denis.—p. 141.

Section of Anterolateral Column of Spinal Cord.—The authors are enthusiastic over their results with cordotomy. The operation is performed for the relief of pain caused by an organic lesion. The clearest indication is in inoperable cancer. It also finds its application in gastric crises of tabes, in painful conditions of the extremities, in kraurosis vulvae, and in all conditions which resist medical and surgical treatment. The section is performed on the side opposite to that of the diseased organ, about four cord segments above the seat of pain. It may be bilateral. The effect of section of the anterolateral column is loss of pain and temperature senses. It is superior to resection of the posterior roots, because, unlike the latter, it does not affect the sense of touch nor the deeper senses, such as the sense of direction. When properly performed, the relief of pain is immediate and complete. Among the complications, they have noted urinary retention, urinary incontinence, urinary infection, trophic and motor disturbances. Muscular weakness of the extremities resulted frequently, but was not followed by contractures. In cachectic cancer cases the mortality from the operation was 25 per cent. In noncancerous cases it was only 6 per cent.

30: 241-384 (Sept.) 1927

*Surgical Treatment of Carcinomatous Glands of Neck. R. Bernard.—p. 241.
Transverse Incision in Operations on Biliary Passages. G. Pieri.—p. 260.

Surgical Treatment of Carcinomatous Glands of Neck.—Bernard states that results obtained with radiotherapy were disappointing. Surgical removal is far superior and should precede irradiation. Anatomic dissection along the planes of cleavage renders the otherwise difficult and lengthy operation relatively easy. The surgical principle in operating on cancer must be observed here as well as in other regions. All of the suspected tissue must be removed, preferably en bloc. The sternocleidomastoid muscle should be sacrificed systematically. In the course of an operation it may become necessary to sacrifice the spinal accessory nerve, to ligate the internal jugular vein, or to resect the pneumogastric nerve. He advises against the ligation of both jugulars. It is better to section the vagus than to tease it. Injuries to the carotid trunk lead to grave complications, such as hemiplegia, or, more frequently, to death.

Journal d'Urologie Médicale et Chirurgicale, Paris

24: 193-272 (Sept.) 1927

Progress of Lithotrity. M. Pavone.—p. 193.
Experience with Renal Surgery. A. Takahashi.—p. 200.
*Early Diagnosis of Kidney Tumors. J. Gottlieb.—p. 224.

Early Diagnosis of Kidney Tumors.—Gottlieb stresses the great importance of an early and complete examination. Such an examination embraces, besides a general one, urinalysis, cystoscopy, catheterization of ureters, chromosystoscopy, pyelography, pyelography aided by inflation of the renal pelvis, and, finally, nephroscopy and pyeloscopy. Pyelograms are far more valuable than cystoscopic findings. His operative cases have demonstrated the correctness and reliability of anatomic pictures as revealed by pyelograms. They enable one to diagnose a renal neoplasm, a polycystic kidney, or a papilloma of the pelvis. When the kidney is small, pyelography after inflation gives excellent results. He also calls attention to the value of nephroscopy and pyeloscopy, a method of examination of the patient before a screen in order to determine the dynamics of a kidney, its position, its mobility, its adherence to neighboring organs. These data are of importance in determining the operability of a given case. Hematuria did not prove to be an early sign in his cases.

Lyon Chirurgical, Lyons

24: 377-495 (July-Aug.) 1927

*Pathogenesis of Osteitis Fibrosa. W. Dega and J. Zeyland.—p. 377.
Experimental Production of Thrill in Arteriotracheal Transplants. P. Leone.—p. 383.
*Circulatory Conditions Fifty-Six Years After Ligation of Artery. A. Dumas and P. Ravault.—p. 387.
Traumatic Jacksonian Epilepsy. P. Wertheimer and L. Paufique.—p. 394.

Pathogenesis of Osteitis Fibrosa.—As a result of observation of two cases of osteitis fibrosa in hallux valgus, the authors believe that sclerosis of blood vessels is the underlying cause. This sclerosis, the result of repeated minor injuries, favors hemorrhage from slight trauma and also interferes with normal resorption of the extravasated blood. The result is a pathologic organization of tissue, which has the appearance of a fibrous osteitis. This is usually preceded by a tissue rich in giant cells.

Circulatory Conditions in a Limb the Femoral Artery of Which Was Ligated Fifty-Six Years Previously.—The leg was somewhat atrophied, but there was no lowering of temperature and no gangrene. The arteria dorsalis pedis showed a marked diminution of tension as compared with the same artery of the opposite side. On the death of the patient, due to influenza, careful anatomic and histologic studies were made. Above the point of ligation, the occluded artery was small in caliber. Below the point of ligation, the artery was smaller than normal but presented a patent lumen. The artery became gradually larger as it proceeded downward. In sections of the artery above the point of ligation, muscle fibers had entirely disappeared, while the elastic tissue was well preserved. In the functioning portion of the artery below the point of ligation, both muscle and elastic fibers were intact.

Paris Médical

64: 193-204 (Sept. 10) 1927

Legal Medicine of Epileptic and Pithiatric Attacks. M. Chavigny.—p. 193.
*Basal Metabolism and Renal Diseases. S. Sterling-Okuniewski and J. Wegierko.—p. 196.
Treatment of Pediculosis and Phthiriasis. L. Périn.—p. 200.

Basal Metabolism and Renal Diseases.—No close relation was found between anatomic and functional lesions of the kidney and basal metabolism, nor between arterial hypertension, residual nitrogen of the blood serum and basal metabolism. In some cases of renal disease of the chloremic form, there is a certain decrease of basal metabolism, and in the majority of azotemic cases with hypertension the basal metabolism is increased. Basal metabolism cannot serve as a point of differentiation between essential hypertension and hypertension due to renal disease, for in both cases the metabolism may be increased or may remain normal. The basal metabolism examination in patients with renal disease has little diagnostic value but it furnishes indications for treatment.

Presse Médicale, Paris

35: 1073-1088 (Sept. 3) 1927

*Mental Confusion in Cases of Cerebral Tumors. H. Claude, H. Baruk and A. Lamache.—p. 1073.
Acrodynia (Infantile); Vegetative Syndrome of Thalamencephalon and Mesencephalon. T. Kuiper.—p. 1075.
Etiology of Beriberi. F. Coste.—p. 1077.

Variety of Mental Confusion in Cases of Cerebral Tumors: Effect of Hypertonic Injection on Ventricular Pressure.—The first case presented by Claude et al. was in a man who had suffered from headaches since childhood. At the age of 53, he had two attacks of epilepsy, the second being followed by a peculiar confusional state resembling, at first, general paralysis and then the Korsakoff syndrome. There was marked intracranial hypertension, verified by lumbar puncture, examination of the eye grounds and ventricular puncture. The

ventricular pressure was 40. With the needle and manometer in place, an intravenous injection of 60 cc. of glucose serum (300 per thousand) was given in four minutes. The ventricular pressure went up to 43 and remained at this figure for fifteen minutes after the injection. The ventricular fluid was evacuated until the pressure reached 5. The patient's condition remained stationary. In the second case, a man, aged 56 years, presented a confusional stupor. After an intravenous injection of 80 cc. of 15 per cent sodium chloride solution, the patient awoke and spoke voluntarily, but he remained disoriented.

35: 1089-1104 (Sept. 7) 1927

*Internal Drainage of Gallbladder. O. Lambret.—p. 1089.
*Medical Cure of Cavitary Ulcers of Stomach Under Radiologic Control. F. Moutier and P. Porcher.—p. 1091.
Rôle of Kidney in Diabetes Mellitus; Mechanism of Variation of Threshold. H. Chabanier, M. Lebert and C. Lobo-Onell.—p. 1094.

Internal Drainage of Gallbladder: Intraparietal Cholecystoduodenostomy.—The operation transformed the bottom of the gallbladder into a sort of channel buried in a fold of the anterior wall of the duodenum, with a course similar to that of the urethra as it enters the bladder. The procedure was successful in five cases. There was no reflux of bile.

Medical Cure of Cavitary Ulcers of Stomach Under Radiologic Control.—The series of twelve cases of cavitary ulcer of the lesser curvature treated by Moutier and Porcher include seven which on radiologic examination resembled spurs or cups and five which were real Haudek niches. Treatment consisted of rest (possible in only four cases), mild lactofarinaceous diet and the administration of bismuth and atropine. Within ten days the radiologic image was greatly modified and the cure was complete in two months, on an average.

Progrès Médical, Paris

53: 1361-1400 (Sept. 3) 1927

Philosophic and Medical Development of Biomechanism. P. Delaunay.—p. 1369.
*Procedures for Measuring Tension of Cerebrospinal Fluid. H. Claude, A. Lamache and J. Dubar.—p. 1384.
Postoperative Intestinal Paresis. A. Aimes.—p. 1387.
Sympathetic Form of Epilepsy: Treatment. H. Damaye and S. Warschawski.—p. 1388.
Irritation by Tar in Genesis of Cancer. H. Péricaud.—p. 1388.

Procedures for Measuring Tension of Cerebrospinal Fluid.—Measured with the ophthalmodynamometer of Bailliart, under control of the ophthalmoscope, retinal arterial pressure is about 35 mm. of mercury for the minimum and 65 to 70 for the maximum; it is usually closely related to the general arterial pressure. The diastolic retinal pressure is about half of the minimal radial tension. It is, as a rule, constant but may vary under the influence of emotion. In the absence of local lesions, disagreement between the retinal and the general pressure points to a disturbance of intracranial pressure.

Revue de Chirurgie, Paris

65: 355-439, 1927

Vaccination in Gastric Surgery. X. Delore and P. Jouve.—p. 355.
*Treatment of Surgical Tuberculosis with Intramuscular Injections of Iodized Oil and with Calcium. A. Finikoff.—p. 363.
Experimental Study of Posttraumatic Vasomotor Disturbances in Extremities. R. Fontaine and D. Miloyevitch.—p. 385.
Treatment of Fractures of Clavicle. V. Kreisinger.—p. 396.
Splenomegaly of Malarial Origin. F. Ferrari.—p. 408.

Treatment of Surgical Tuberculosis with Intramuscular Injections of Iodized Oil and Calcium.—Finikoff's method consists in giving intramuscular injections of sterilized peanut oil with addition of a small quantity of tincture of iodine, and of supplying large amounts of calcium salts by mouth or intravenously. From 5 to 10 cc. of iodized oil are thus given every five or eight hours. The theoretical basis for the treatment is as follows: The monocytogenic effect of an absorbable vegetable oil increases the lipase content of the blood which, in turn, helps to digest the fatty envelope of the tubercle bacillus. The proteolytic and leukocytogenic effect of iodine tends to break up the protein and the albuminous elements of the bacillus. Addition of calcium salts prevents demineralization of the body and helps to neutralize fatty acids liberated by the breaking up of the fatty envelope of the bacillus. A clinical cure is accomplished in from six to eight months. Out of forty-eight cases thus treated, thirty-four were cured, ten were improved, and three were considered failures.

65: 441-527, 1927

*Abdominal Drainage. X. Delore, H. Comte and Jouve.—p. 441.
Malarial Splenomegaly. F. Ferrari.—p. 461.

Abdominal Drainage.—The authors discuss at length the modern tendency toward abandonment of peritoneal drainage. They concur, in the main, with the view that peritoneal drainage should be practiced as little as possible, provided that the peritoneal cavity is not subjected to continued reinfection. Rather than drain the peritoneum, which is preeminently capable of fighting the infection, they frequently drain more vulnerable parietal tissues.

Revue Neurologique, Paris

34: 241-336 (Sept.) 1927

Cerebral Calcium Metabolism. I. Bertrand and R. Altschul.—p. 241.
Pendular and Pseudopendular Reflexes. Austregesilo, Costa-Rodrigues and A. Marques.—p. 262.
*Epilepsy in Chronic Epidemic Encephalitis. A. Wimmer.—p. 269.
Tumor of Right Frontal Lobe Radiographically Visible. E. Moniz.—p. 277.
Possible Error in Diagnosis of Progressive Atrophic Myopathy. G. Söderbergh.—p. 280.

Epilepsy in Chronic Epidemic Encephalitis.—Wimmer presents seven cases of monosymptomatic encephalitic epilepsy. Encephalitic epilepsy may supervene directly after the initial, acute stage, or there may be an interval. In the seventh case there was an interval of eight years. Encephalitic epilepsy is much more frequent than the literature would indicate. It does not result from a cicatrix of the brain, but is an active inflammatory process. Clinical and anatomopathologic observations point to the supposition that the tonoclonic convulsions of encephalitic epilepsy are the expression of pathophysiologic cooperation between the cerebral cortex and the injured basal ganglions.

Schweizerische medizinische Wochenschrift, Basel

57: 857-880 (Sept. 3) 1927

Bile and Infection. O. Schultz-Brauns.—p. 858.
Surgery of Intrathoracic Goiter. F. Sauerbruch and W. Felix.—p. 859.
Defect of Septum of Auricle Without Other Cardiac Deformity. H. Müller.—p. 862.
*Physicochemical Conditions of Ossification. K. Klinke.—p. 866.
Idiosyncrasy to Camomile. W. Jadassohn and M. Zaruski.—p. 868.
Localized Nervous Symptoms. O. Veraguth.—p. 869.
Serous Meningitis After Intraspinal Injection of Serum in Meningitis with Increase of Polymorphonuclears. E. Frommel.—p. 873.

Physicochemical Conditions of Ossification.—During the age of growth the phosphate content of the serum is about 5 mg. per cent, while in the adult it is from 2 to 3 mg. per cent. During the healing of fractures, it rises to the childhood value. The active phosphatase furnishes inorganic phosphate to the blood for the restoration of solution equilibrium and thus raises its concentration. In rickets there is a marked decrease of phosphate in the serum. There is no decrease of phosphatase; the rachitic bone ossifies in normal serum. There is, then, a deficient supply of some substance, which appertains to the reaction: organic phosphate—phosphatase—earthy phosphates of bone.

57: 901-920 (Sept. 17) 1927

Acidosis. L. Asher.—p. 901.
*Treatment of Peripheral Paralyses. R. Brun.—p. 904.
Safeguarding Professional Confidences. F. Iselin.—p. 911.
Id. R. Stähelin.—p. 913.
*Basal Metabolism in Otosclerosis. E. Curchod.—p. 916.

Treatment of Peripheral Paralyses.—The necessity of long continued after-treatment following tendon suture is emphasized by Brun. The most valuable method here is electrotherapy. In the presence of complete reaction of degeneration, the galvanic current is the only means of getting the paralyzed muscle to perform active work. He insists on the importance of correct electrodiagnosis, since the faradic current applied to degenerated muscles may be not merely useless, but decidedly harmful by furthering contractures of the antagonists. The treatments should always be given by a physician versed in electrodiagnosis and electrotherapy, never

by a nurse, since the changes must be watched and the technic varied as indicated.

Variations in Basal Metabolism in Otosclerosis.—Curchod tested the basal metabolism in thirteen women, aged from 23 to 51, with bilateral otosclerosis. It was normal in two, decreased in ten. The one instance in which it was increased is explained by the patient's excitement. Tested a second time, it was found below normal.

Rassegna Internazionale di Clinica e Terapia, Naples

8: 433-512 (July) 1927

Acute Infection of Liver. P. Marogna.—p. 435.
*Bone Regeneration with Radio-Active Oil. F. Allodi.—p. 458.
*Bacterial Culture Medium. L. Vitale.—p. 474.

Bone Regeneration with Irradiated Oil.—From his studies on chickens, Allodi concludes that irradiated seal oil is efficacious in promoting bone regeneration, even when the diet is deficient in vitamins and the animals are deprived of sunlight. On the other hand, the effect is harmful when the animals receive a diet rich in vitamins, and, in addition, large doses of an excessively irradiated oil. Overprolonged action of ultraviolet rays on seal oil destroys the vitamin principle instead of increasing it.

Soy Beans as a Culture Medium.—A decoction of soy beans offers an excellent basis for culture mediums. The method is economical, as the seeds may be used afterward for feeding laboratory animals.

Riforma Medica, Naples

43: 793-816 (Aug. 22) 1927

Nonspecific Hemoclastic Crises. E. Cedrangolo.—p. 794.
*Appendicitis Accompanying Mumps. E. Benassi.—p. 796.
Acute Serous Meningitis. A. Muggia.—p. 798.

Appendicitis Accompanying Mumps.—An entire family suffered from mumps. In one adult member the disease became bilateral and five days after the onset appendicular symptoms developed, and, finally, a fatal septic peritonitis. Benassi believes there was a relation between the mumps and the appendicitis.

43: 889-912 (Sept. 19) 1927

*Ergotamine in Diabetes. M. Bufano.—p. 891.
Aspergillar Bronchopneumomycosis. E. Sica.—p. 896.

Ergotamine in Diabetes.—Experiments on rabbits and clinical trial in three patients with diabetes showed that ergotamine raises tolerance for carbohydrates. The dose varies. It cannot, however, replace insulin, which represents a true substitution therapy, while ergotamine acts on only one of the pathologic mechanisms of diabetes.

Rivista di Clinica Medica, Florence

28: 421-462 (June 15) 1927

*Action of Calcium Chloride in Serous Pleurisy. E. Periti.—p. 421.
Symmetrical Lipomatosis. M. Montagnani.—p. 431. C'cn.
*Lipolytic Action of Tuberculous Blood. G. Melli.—p. 451.

Calcium Chloride in Pleurisy with Effusion.—In twelve patients with serous pleurisy Periti studied the changes in the calcium content of the effusion before and after administration of calcium chloride per os. In four cases this medication shortened the course and furthered resorption. Experimental work in vitro and on guinea-pigs demonstrated the inhibitory action of calcium chloride on the tubercle bacillus.

Lipolytic Action of Tuberculous Blood.—A study by Melli of tuberculosis patients in different stages showed decrease in the lipolytic power of their blood as compared to that of normal persons. This change does not parallel the degree of lipemia, as the latter exceeded normal figures in only nine out of twenty-two cases and in these the increase was very slight. In twelve out of seventeen cases there was marked increase in the hemokonia content of the fasting blood.

Rivista di Malariologia, Rome

6: 501-708 (May-June) 1927

Malaria Prevention. A. Missiroli.—p. 501.
*Bismuth in Malaria. U. Speranza.—p. 573.

Bismuth in Malaria.—Bismuth, according to Speranza, exerts in malaria an antiprotozoan action similar to its action in syphilis. As it is inferior to quinine in malaria, it must be left for the rare cases of intolerance to quinine.

Revista Médica Latino-Americana, Buenos Aires

12: 1505-1656 (July) 1927

*Ayerza's Disease. P. M. Barlaro.—p. 1505.
Congenital Tubo-Ovarian Hernias. C. Lugones.—p. 1536.
Prostatic Adenoma with Urinary Retention. A. F. Ortiz and J. J. Gazzolo.—p. 1550.
Infantile Acetonemia. C. R. Castilla.—p. 1556.
Treatment of Nontuberculous Bone Diseases. Delfor Del Valle and R. E. Dónovan.—p. 1570.
Tuberculosis of the Eye. J. Lijó Pavía.—p. 1583.

Ayerza's Disease.—Barlaro lists eleven clinical pictures which have been identified with Ayerza's disease. The condition is apparently not a separate disease, but a syndrome, such as Hanot's, associated with various clinical and pathologic pictures. The disease described by Escudero as being associated with erythrocytosis is not Ayerza's, but a new entity—if it is finally proved to exist.

Revista Médica del Uruguay, Montevideo

30: 401-458 (Aug.) 1927

*Pneumonia Following Pneumothorax. J. B. Morelli and A. Mañé.—p. 401.
Puerperal Pituitary Abscess. C. M. Dominguez, M. Rago and D. Martinez Olascoaga.—p. 413.
Tests of Liver Function. A. E. Gaggero.—p. 419.
Scleroderma with Sclerodactylia. E. Figari Legrand.—p. 422.

Pneumonia Following Artificial Pneumothorax.—In a patient with pulmonary tuberculosis, the use of artificial pneumothorax brought about an apparent cure. Four years afterward, when an influenzal pneumonia developed, the primary lesion became reactivated and eventually proved fatal.

Deutsche medizinische Wochenschrift, Berlin

53: 1499-1542 (Sept. 2) 1927

Syphilis and Relapsing Fever. W. Kolle and R. Prigge.—p. 1499.
*Syphilitic Infection from Cadaver. E. Hoffmann.—p. 1501.
Surgery of Infants. Heile.—p. 1502.
Catgut Sterilization. W. Lange.—p. 1503.
*Myeloid Pseudoleukemic Reaction. Arneth.—p. 1505.
Unbalanced Egg Diet. E. Friedberger and S. Seidenberg.—p. 1507.
Transvestitism. Placzek.—p. 1509.
Buscaino's Black Reaction in Urine. F. Bettzieche.—p. 1511.
Course of Posthemiplegic Chorea in Puerperium. E. Jacobi.—p. 1515.
Galactorrhea in Virgin with Uterine Myoma. O. Herschan.—p. 1517.
Self-Retaining Vaginal Speculum. Pfleiderer.—p. 1517.
Wine Containing Arsenic. E. Remy.—p. 1518.
Infant Welfare in Berlin. H. Nothmann.—p. 1520.

Syphilitic Infection from Cadaver.—Hoffmann found only twenty certain, fourteen probable and four merely mentioned cases in the literature. In the twenty certain cases the chancre was nearly always on the finger (three on the index finger, four on the thumb, ten on other fingers). Once the primary lesion was on the neck. The course of the disease was usually severe. In three cases, there was malignant syphilis, in one early brain syphilis. Many of the infections were tardy. Infection is easiest from cadavers of congenitally syphilitic children and fetuses, rarer from those of adults with early syphilis, exceptional in paralysis. The infrequency of infection from cadavers is due, apparently, to the early weakening of the virus, while the penetrative faculty of *Spirocheta pallida*, important for the ordinary infection, is reduced because of injury to its terminal filament and cortical substance. The greatest cleanliness and care are advisable in making necropsies.

Myeloid Pseudoleukemic Reaction.—The myeloid pseudoleukemic reaction occurs in diseases of chronic course. The eosinophils, mast cells, lymphocytes and monocytes do not form a leukemic blood-picture (shifting to the left), so that the term "myelosis" (or lymphadenosis), in the sense of leukemia, is not justified. The qualitative behavior of the erythrocytes is typical, and in the direction of the changes which are considered more or less characteristic for pernicious anemia.

53: 1543-1582 (Sept. 9) 1927

Cure and Immunity in Protozoal Diseases. C. Schilling.—p. 1543.
Growth Substances of Yeast. W. Weichardt.—p. 1545.
*Atypical Manifestations of Epidemic Encephalitis. F. Kreuser and E. Weidner.—p. 1547.

Irradiated Ergosterol: Direct and Indirect Light Therapy. A. Hottinger. —p. 1549.
Treatment of Infantile Rickets with Active Ergosterol Preparations. C. Falkenheim.—p. 1550.
Action of Ergosterol on Rickets. W. Lasch and A. Behrens.—p. 1552.
Osteomalacia Treated with Irradiated Ergosterol. W. Starlinger.—p. 1553.
Diphtheria. Reye.—p. 1554.
Electric Sound for Atonic Stomach. F. Krische.—p. 1562.

Atypical Manifestations of Epidemic Encephalitis.—Seven cases of epidemic encephalitis with atypical manifestations are reported. The acute onset of different vegetative disturbances and neurasthenic or psychopathic personality changes led to an initial diagnosis of ordinary neurasthenia or psychopathy.

Fortschritte der Medizin, Berlin

45: 271-294 (Sept. 16) 1927

*Strontium in Therapy. K. Grassheim.—p. 271.

Strontium in Therapy.—Strontium is indicated in poroma, since it is here much more active than calcium, while in rickets and also in osteomalacia, calcium and phosphorus are more efficacious. Strontium is superior to calcium in effect on the vegetative nervous system, and it should be used in all its diseases. The use of strontium is contraindicated in permanently increased blood pressure.

Klinische Wochenschrift, Berlin

6: 1689-1736 (Sept. 3) 1927

Acid Therapy with Neutral Salts. F. Mainzer.—p. 1689.
*Serum Treatment of Scarlet Fever. Schottmüller.—p. 1692.
*Origin of Angina Pectoris. E. Wolff.—p. 1696.
Acute and Chronic Poisoning from Solution of Pituitary. K. Ehrhardt and W. A. Simunich.—p. 1699.
Tuberculous Thrombolymphangitis of Larynx. P. Manasse.—p. 1701.
Schick Test not Practicable for Determining Worth of an Immunization Method Against Diphtheria. H. Opitz.—p. 1701.
Blood Groups and Treatment in Syphilis. M. Gundel.—p. 1703.
Fluorescence of Internal Organs. S. Bommer.—p. 1705.
Innervation of Transversely Striated Muscle Fibers. A. Slauck.—p. 1707.
Quantitative Determination of Globulin in Cerebrospinal Fluid: Technic. S. von Nádor-Nikitits.—p. 1709.
Titration of Stomach Contents with Two Indicators After Buffer-Free Test Meal. L. Heilmeyer and W. Graubner.—p. 1709.
Ammonia Formation in Isolated Muscles; Connection with Muscle Work. J. K. Parnas et al.—p. 1710.
Detoxication of Hydrocyanic Acid. E. Löffler and R. Rigler.—p. 1712.
Three Early Cures of Syphilis in Same Patient. E. Hoffmann.—p. 1712.
Modern Treatment of Sterility. E. Pribram.—p. 1713. C'cn.
Postoperative Disintegration of Albumin. M. Bürger and M. Grauhan. —p. 1716. C'td.

Serum Treatment of Scarlet Fever.—Behring-Werke scarlet fever serum was used by Schottmüller, in doses of 25 cc., in young children, and from 50 to 75 cc. in adults, according to the severity of the disease. If necessary the doses were repeated after from twelve to twenty-four hours. Fifty scarlet fever patients were treated and seven typical cases are reported in detail. The toxic symptoms were very favorably affected. Scarlet fever serum is indicated in all severe cases and also in the light cases, since it reduces the number of complications. It should be given as early as possible. That the first disease symptoms in scarlet fever are favorably and specifically influenced by scarlet fever streptococcus serum shows that the *Streptococcus hemolyticus* of scarlet fever causes the initial pathology, in which originate the complications in the second stage of the disease. Hence, the streptococcus can no longer be considered as being only a secondary agent of the disease.

Modern Views of Origin of Angina Pectoris.—Through a sudden elevation of resistance in the peripheral circulation or through suddenly increased influx into the heart—causes of increased heart work—there occur residues in the left heart chamber, which becomes distended, and increase of intraventricular pressure. At the same time, the contractions become stronger and are capable of interrupting the coronary circulation through compression. Stasis and distension in the proximal part of the coronary vessels and in the beginning of the aorta result. This mechanical action is an adequate provocation for the pain of angina pectoris.

6: 1737-1784 (Sept. 10) 1927

Modern Pathology in Relation to Virchow's Cellular Pathology. G. Herxheimer.—p. 1737.
Bronchial Asthma. E. Kylin.—p. 1742.
*Local Insulin Treatment of Ulcers. E. Nathan and A. Munk.—p. 1747.
Cholesterol Metabolism. H. Beumer.—p. 1749.
Blood Sugar Regulation and Water Metabolism. H. Marx.—p. 1750.
Epidemic of Paratyphoid B Infection. Pieper and Rosenstern.—p. 1754.
Treatment of Case of Impetigo Herpetiformis with Female Sex Hormone. A. Buschke and Curth.—p. 1757.
"Faulty Registration of the Ear" and Changes in Sound Heard. W. Anthon.—p. 1759.
Heredity in Uniovular Twins. J. Waardenburg.—p. 1760.
Influence of Glands of Internal Secretion on Peptidase Metabolism. H. Pfeiffer and F. Standenath.—p. 1761.
Destructive Action of Human Serum on Anthrax Bacillus. F. C. Hilgenberg.—p. 1762.
Traumatic Chronic Edema. Raeschke.—p. 1763.
Disturbances and Injuries Due to General Anesthetics. Rost.—p. 1764.
Postoperative Distintegration of Protein. M. Bürger and M. Grauhan. —p. 1767. C'cn.
Frequency of Acute Inflammation of Temporo-Maxillary Articulation. E. Rosenbaum.—p. 1783.
Technic of Determination of Residual Nitrogen. G. Schuftan.—p. 1783.

Local Insulin Treatment of Ulcers.—Nathan and Munk found that insulin in its solution fluid, the same solution fluid without addition of insulin, and, as well, a suitable acid solution dropped on ulcerations (especially torpid crural ulcers), occasioned a severe tissue reaction characterized by seedlike, bright red granulations; growth of epithelium was thereby stimulated. After some time, however, the decrease of the ulcer surface ceased. Insulin substance freshly dissolved in physiologic sodium chloride solution and dropped on the ulcer does not produce the same results. The cure observed by Adlersberg and Perutz in the local treatment of experimental ulcers and torpid crural ulcers with insulin was not, Nathan and Munk state, due to the action of insulin, but must be ascribed to the action of the acid fluid in which the insulin was dissolved. The stimulation of granulations may be looked on as an effect of acid.

Münchener med. Wochenschrift, Munich

74: 1483-1526 (Sept. 2) 1927

Treatment of Syphilis. W. Heuck.—p. 1483.
Immunity Relations Between Frambesia and Syphilis. F. Jahnel and J. Lange.—p. 1487.
Influence of Infection with Trypanosomes on Experimental Rabbit Syphilis. A. Schmidt-Ott.—p. 1488.
Value of Reactions in Cerebrospinal Fluid Obtained Suboccipitally. A. M. Memmesheimer.—p. 1490.
Treatment of Syphilis with Lipoid Soluble Bismuth Compound. H. Müller and Kohlenberger.—p. 1491.
*Malaria Treatment in Acute and Chronic Gonorrhea. B. Spiethoff.—p. 1493.
Thallium in Law and in Industry. A. Buschke and E. Langer.—p. 1494.
Two Cases of Skin Injury from Acriflavine Under Intense Sun Rays. F. Noltenius.—p. 1497.
Disseminated Miliary Skin Necrosis from Vasomotor Neurosis in Hysteric Patient. E. Bulle and W. Haase.—p. 1498.
Prel's New High Frequency Apparatus for Diagnosis. K. Schmidt.—p. 1499.
New Elastic Suspensory Without Buckles. E. Wrescynski.—p. 1500.
Wound Infection and Abortive Wound Antisepsis. E. von Redwitz.—p. 1501. C'cn.
New Decision of Government Insurance Office on Accident Neurosis. Hoch.—p. 1507.
American Impressions. F. Müller.—p. 1508. C'cn.
Centenary of Gassner. L. Gernhardt.—p. 1512.

Malaria Treatment in Acute and Chronic Gonorrhea.—The considerable shortening of the course of the disease, the prospect of fewer recurrences and decreased likelihood of transition into clinically latent, chronic gonorrhea are advantages of the malaria treatment of acute and chronic gonorrhea. There must be careful supervision of the results of treatment. The patients should be examined at intervals for four months. A condition for malaria treatment is that the case be ready to undergo local treatment. The much more fleeting effect of fluid remedies on the female urethral mucosa in comparison to the male necessitates a more intensive treatment. The results are not satisfactory in gonorrhea of little girls. The treatment of females, in general, takes twice as long as that of males, but clinical experience points to a possible shortening of the incubation period in females.

74: 1527-1570 (Sept. 9) 1927

Focal Infection from Standpoint of Internal Medicine. H. Schottmüller. —p. 1527.
Scarlet Fever. H. Schaber.—p. 1531.
*Serum Treatment of Scarlet Fever. A. Meyerdierks.—p. 1533.
Hypoglycemic Condition After Insulin Injection. E. Wiechmann and F. Koch.—p. 1536.

*Etiology of an Epidemic in Flooded Districts (Schlammfieber). Brill.—p. 1537.
Results with Hohn's Method of Cultivating Tubercle Bacilli. C. Sommenschein.—p. 1540.
Relationship Between Herpes and Chickenpox. B. M. van Driel.—p. 1541.
Sulphuric Acid Splitting Ferment in Duodenal Fluid. E. Becher.—p. 1542.
Source of Error in Testing Hearing with Speech. F. Bruck.—p. 1543.
*Dosage in Butter Meal Diet. K. Ochsenius.—p. 1544.
Regular Milk Ingestion in Childhood. K. Levi.—p. 1545.
Child's Appendix in Roentgenogram. J. Siegl.—p. 1545.
Arthritis Deformans of Ankle Joint in the Young. P. Pitzen.—p. 1547.
Angle Interceptor for Cystoscopy. K. Trommer.—p. 1550.
Baden Baden Combination Treatment of Chronic Arthritic Diseases. M. Hedinger and H. A. Staub.—p. 1550.
Eclampsia in Mother and Child. P. Kissinger.—p. 1552.
Treatment of Syphilis. W. Heuck.—p. 1552. C'td.

Serum Treatment of Scarlet Fever.—A large majority of the seventy cases of scarlet fever treated by Meyerdierks with Marburg-Behring-Werke serum showed improvement the day after injection. Some, however, were affected little or not at all. Serum treatment is indicated in every fresh scarlet fever attack in which there is fever. Exact rules as to the latest possible time for injection have not been made. Injection is justified as long as the symptoms may be ascribed to a toxic action of the scarlet fever agent (as opposed to pyemic action). Several cases are tabulated to show the pronounced antitoxic action and one case is reported to demonstrate the life-saving effect of the serum.

Etiology of Fever Occurring in Flooded Districts.—Brill calls attention to epidemics of a disease (Schlammfieber) with clinical resemblances to Weil's disease and relapsing fever, that have occurred among workers in flooded districts in various parts of Germany. The disease does not affect the general population but only persons who have been working in the water (as in rescuing flooded harvests). In the blood of patients with this disease he found an organism which Schilling designated as a spirochete unlike any spirochete known to him. Brill examined the heart blood and sections from the spleen, liver and kidneys of field mice from the flooded districts. In the heart blood and in the kidney sections of 20 per cent he found spirochetes of a great variety of morphologic characteristics. He suggests that as large numbers of field mice are drowned in the flooded fields, a spirochete which is pathogenic to man and which is harbored by field mice infects the water and enters the organism of the workers through the softened skin or the mucous membrane.

Dosage in Butter Meal Diet.—Infants tolerate this food best, Ochsenius has found, when it is given alternately with feedings of fat-poor mixtures. It should be introduced gradually into the diet. Not more than 25 Gm. of butter should ever be given in one day. When given with albumin milk and rice water after an acute disturbance, he adds it very gradually, replacing the rice water a teaspoonful at a time. He fears that ignorance in the matter of dosage may result in this valuable food falling into discredit.

Wiener klin. Wochenschrift, Vienna

40: 1097-1120 (Sept. 1) 1927

Immune Biology of Febrile Diseases. A. F. Hecht.—p. 1097.
Etiology of Myxoma of Rabbit. B. Lipschütz.—p. 1101.
*Diuretic Action of Natural Sulphur Water per Os. H. Molitor.—p. 1103.
Physiology of Fat Soluble Vitamins. H. Abels.—p. 1105.
Resistance of Dick Toxin to Cold. J. Lukács.—p. 1107.
*Interruption of Pregnancy in Pulmonary Tuberculosis. P. Habetin.—p. 1108.
Whooping Cough Convulsions and Spasmophilia. R. Neurath.—p. 1110.
*Treatment of Colds with Small Doses of Nascent Iodine. H. Sternberg.—p. 1110.
Indication for and Construction of Plaster Body Cast. O. Stracker.—p. 1111.
Biologic Diagnosis of Pregnancy. E. Klaften.—p. 1113.
Treatment of Nervous Conditions of Vascular System. E. Zak. Supplement.—pp. 1-12.

Diuretic Action of Natural Sulphur Water.—Experiments on rabbits and dogs showed that natural sulphur water of the Marien Quelle administered per os caused increased diuresis, such as is produced after ingestion of urea, hypertonic sodium chloride solution, etc. In contrast with this nonspecific immediate action, apparently dependent on the sulphate and thiosulphate contained in natural sulphur water, the metabolism experiments showed after several days an increase in the amount of urine, which could not be directly attributed to the administration of fluid and which continued present some days after suspension of the sulphur water administration. The circumstance that the water metabolism in a dog with abundant diuresis was scarcely changed at all, while in a dog with pathologic diminution of the diuresis an increase up to two to four times appeared, indicates that sulphur water acts at first indirectly through improvement of the activity of the organ important for water metabolism, e. g., the liver or the tissues, creating conditions favorable to diuresis.

Interruption of Pregnancy in Pulmonary Tuberculosis.—The history of interruption of pregnancy on account of tuberculosis is reviewed by Habetin, from 1770, when Rist held that pregnancy was advantageous for the course of tuberculosis, down to the present, when the author would have every tuberculous pregnant woman submitted to a week's observation before conclusions are drawn. Examination includes the anamnesis, physical findings, temperature, roentgenograms, sputum and urine, sedimentation rate of erythrocytes, tuberculin skin reaction and weight. Judgment is then passed according to whether the process in each case is static or dynamic.

Treatment of Colds with Small Doses of Nascent Iodine.—Subcutaneous injections of a 5 per cent sodium iodide solution, which contains slight traces of free iodine in the nascent state have a good therapeutic effect in nervous colds (hydrorrhea). The administration per os of a few drops of a 10 per cent tincture of iodine (not more) or from 3 to 5 drops of an iodine potassium iodide or iodine sodium iodide solution in a full glass of water will frequently cut short colds within from a few hours to a day. In subacute (protracted) colds, Sternberg gives at intervals of from one to four days subcutaneous injections of iodine up to six in number. Cases which prove refractory to this treatment are given dry peptone for fourteen days and the iodine injections are then resumed.

40: 1121-1164 (Sept. 8) 1927

Malaria Inoculations at Psychiatric Clinic. J. Wagner-Jauregg.—p. 1121.
*Treatment of Encephalomyelitis. O. Albrecht.—p. 1122.
Functional Behavior of Vessels; Hemiplegia. F. Deutsch.—p. 1124.
Anomaly of Vision of Psychomotor Nature. S. Erben.—p. 1127.
Pathogenesis and Pathology of Peripheral Fascial Paralysis. A. Fuchs.—p. 1129.
Symptomatology of Astasia-Abasia. J. Gerstmann.—p. 1133.
Epileptic and Hysteric Attacks. I. P. Karplus.—p. 1136.
Ambulant Psychic Treatment of Mental Disease. H. Kogerer.—p. 1138.
Therapy of Pituitary Disease. O. Marburg.—p. 1140.
Combined Pyramidal and Extrapyramidal Diseases. M. Pappenheim and E. Pollak.—p. 1141.
Effect of Hyperventilation. E. Redlich.—p. 1144.
Spontaneous Correction in Tabetic Ataxia. M. Schacherl.—p. 1146.
Psychic Symptoms in Disease of Mesencephalon and Thalamencephalon. P. Schilder.—p. 1147.
Cranial Anomalies and Psychic Disturbances. A. Schüller.—p. 1148.
Causes of Generalized Irritation of Cortex in Epileptic Attack. E. Spiegel.—p. 1150.
*Besredka's Treatment with Typhoid Vaccine in Neurology. G. Stiefler.—p. 1152.
Favorable Effect of Intercurrent Febrile Disease on Case of Myasthenia. E. Stransky.—p. 1155.
Muscular Atrophy and Choreiform Myoclonic Motor Disturbance. E. Sträussler.—p. 1156.
*Differential Diagnosis of Cerebral Hemorrhages. J. Wilder.—p. 1158.

Treatment of Encephalomyelitis.—The first two cases reported by Albrecht were those of young men who within a few months had had frequent focal manifestations, sudden in onset. Fever and brain pressure symptoms were absent. The focal manifestations, of unequal duration, dwindled and there was complete recovery. In the third case the disease was limited almost entirely to the spinal cord. In the fourth case, there was disturbance of sensibility of the hemiplegic type, along with slight cerebral nerve symptoms. Because of the frequent occurrence of spontaneous retrogression of the disease, it is difficult to evaluate methods of treatment. Roentgen rays seemed to have an immediate, clearly marked effect.

Besredka's Treatment with Typhoid Vaccine in Diseases of Nervous System.—Stiefler reports four cases of polyneuritis with atrophic paralyses and sensory disturbances, in which with

energetic treatment with typhoid vaccine a relatively sudden and complete recovery was obtained, in marked contrast to earlier experience with protracted and recurrent attacks. Thirty-eight advanced cases of postencephalitic Parkinson's disease were unaffected by the treatment, seventeen slight and moderate cases showed improvement; in seven there was a four-year remission. Four cases of paralysis agitans as well as three cases of spastic spinal paralysis were not affected by the typhoid vaccine treatment. As an initial dose, the author uses from 0.3 to 0.4 cc., which he increases to 1, 1.5 or 2 cc. intravenously (1 cc. is equivalent to 250,000 organisms).

Differential Diagnosis of Cerebral Hemorrhages.—Wilder has found van den Bergh's bilirubin determination for serum a means of ascertaining whether or not an apoplectic attack is due to hemorrhage. A bilirubin content above 1:200,000 indicates hemorrhage. Increase of bilirubin appeared within twenty-four hours after the attack, and it could be demonstrated as late as four weeks afterward. It furnishes a means of early differential diagnosis between hemorrhage and softening.

40: 1165-1188 (Sept. 15) 1927

Progress in Treatment of Skin and Venereal Diseases. W. Kerl.—p. 1165.
Removal of Wrinkles from Face. R. O. Stein.—p. 1168.
Cutaneous Vaccination in Arthritis. E. Přibram.—p. 1172.
*Tonsillectomy After Peritonsillar Abscess. W. Haardt.—p. 1173.
Multiple Primary Paraffin Carcinomas. E. Spitzer.—p. 1174.
Gold Treatment of Arthritis. E. Pick.—p. 1175.
New Apparatus for Blood Transfusion. H. W. Peters.—p. 1176.
Diseases Simulating Cholelithiasis. O. Weltmann.—p. 1177.
Diminished Resonance Caused "Indirectly." A. Luger.—p. 1180.
Roentgen Ray Examination of Larynx. M. Sgalitzer.—p. 1181.
Treatment of Blood Diseases. N. Jagić. Supplement.—p. 1.
Treatment of Hypertonia and Hypertension. J. Pál. Supplement.—p. 3.
Protein Therapy. A. Decastello. Supplement.—p. 6.

The Best Time for Tonsillectomy in Peritonsillar Abscess.—In twenty-one patients, Haardt removed the tonsils from two to seven days after incision of a peritonsillar abscess. In nineteen cases the results were satisfactory, but in two postoperative sepsis developed. He has returned to his former practice of waiting for complete subsidence of the acute inflammation before excising the tonsils, except when satisfactory drainage of the abscess is impossible, when incision is followed by hemorrhage or when a septic condition fails to improve after incision.

Zentralbl. f. Gynäkologie, Leipzig

51: 2521-2584 (Oct. 1) 1927

*Influence of Genital Cycle on Absorption Capacity of Skin. F. Schultze-Rhonhof.—p. 2522.
Prospective Potencies of Blood of Pregnant Women. P. Caffier.—p. 2533.
Rupture and Suppuration of Symphysis in Spontaneous Parturition. H. Naujoks.—p. 2537.
*Treatment of Puerperal Mastitis. Von Oettingen.—p. 2543.
Wassermann Reaction and Pregnancy. E. Poeck.—p. 2547.
"Surgical Treatment of Umbilical Hernia in Obesity." A. Ostrčil.—p. 2549.
Treatment of Inflammatory Diseases of Female Genital Organs by Iontophoresis. J. Werboff.—p. 2550.

Absorption Capacity of Skin During Menstruation and the Puerperium.—Schultze-Rhonhof examined the sputum at intervals after application of iodine, in a wool fat and petrolatum base, to the skin of the forearm in women during menstruation and in the intermenstrual period, during pregnancy and in the puerperium. He found that absorption was slower during menstruation and in the puerperium. He believes that the cause must be sought in the skin itself. He attaches slight significance to its increased fat content at these times.

Treatment of Puerperal Mastitis.—Oettingen points out that to continue lactation in mastitis is contrary to the generally accepted principle in treatment of inflammations, i. e., that the inflamed part should be kept at rest. In 1923 the decision was made in the women's clinic of Heidelberg university to take the child from the breast on the appearance of mastitis and to use Bier's cupping. The results improved (20 per cent of abscesses in two years as against 30 to 44 per cent in the previous six years). In 1925 the cupping was discontinued and the percentage of abscesses dropped to 11 per cent.

51: 2585-2648 (Oct. 8) 1927

Injury to Germ Cell from Irradiation of Ovary. H. Martius.—p. 2601.
*Ovarian Pregnancy with Full-Term Living Child. T. Micholitsch.—p. 2616.
*Causes of Tubal Pregnancy. O. Pritzi.—p. 2620.
Action of Ovarian Hormone. F. van de Walle.—p. 2622.
Elastic Stretching of Vaginal Wall. M. Speiser.—p. 2624.
Intestinal Incarceration by Umbilical Ring in Fetus. A. Reuss.—p. 2628.
Congenital Defect in Thoracic Wall. C. Wigger.—p. 2631.

Ovarian Pregnancy with Full-Term Living Child.—The mother in this case was 40 years old and had never before been pregnant, though she had wanted a child. Micholitsch examined her in the seventh month and found pregnancy, complicated by myoma of the cervix on the right side, old parametritis on the left side, and rachitic pelvis. She had some pain but no bleeding. Delivery at term by cesarean section was advised. The ovarian pregnancy was discovered at this operation. A living female child, 50 cm. long and weighing 3250 Gm., was delivered. She presented a number of deformities: muscular contractions, bilateral club foot, etc., but has lived and thriven. The entire gestation sac was composed of ovarian tissue. It was strengthened by adhesion of the mesosigmoid, the sigmoid flexure, the omentum, the broad ligament and the uterus. Fibers of smooth muscle, clearly of uterine origin, traversed the surface of the lowest part of the sac. The placenta was situated at the hilum, and it is to this fact, most of all, that the favorable outcome of the case is due.

Causes of Tubal Pregnancy.—Pritzi found plasma cells in all of 100 cases of tubal pregnancy. In Kermauer's clinic, the cases of tubal pregnancy have more than doubled since the war. Both these facts, he believes, speak strongly in favor of an inflammatory, as against a congenital cause.

51: 2649-2712 (Oct. 15) 1927

Mechanism of Transport of Ovum. F. Kok.—p. 2650.
*Tissue Puncture in Diagnosis of Inoperable Tumors. J. Wieloch.—p. 2656.
*Use of Infusion of Ergot. P. Caffier.—p. 2659.
Action of Acetylene Anesthesia on Parenchymatous Organs. W. Schmitt and E. Letterer.—p. 2665.
New System of Constitutional Types. J. S. Galant.—p. 2668.
Diagnosis of Rupture of Membranes by Reaction of Vaginal Secretion. E. Fischer.—p. 2672.

Tissue Puncture in Diagnosis of Inoperable Tumors.—Two cases of pelvic tumor are reported by Wieloch in which examination of small particles of tissue obtained by puncture, carried out through the vagina, clarified the diagnosis. He uses a long hollow needle with a diameter of 2 mm.

Use of Infusion of Ergot.—From tests on animals and on the isolated uterus, Caffier concludes that infusion of ergot has extremely slight therapeutic value. Its alkaloid content is minimal.

Zentralblatt für innere Medizin, Leipzig

48: 817-848 (Aug. 20) 1927

Development of Pulmonary Tuberculosis. F. Redeker.—p. 818.
*Influencing Leukocytosis in Insulin Shock. O. Klein and H. Holzer.—p. 828.

Influencing Leukocytosis in Insulin Shock.—In the leukocytosis that often accompanies insulin hypoglycemia, Klein and Holzer found that ingestion of from 200 to 300 Gm. of milk caused a sharp but temporary fall in the number of leukocytes. The decline began from twenty to forty minutes after taking the milk, before the sugar in the milk would be able to influence the blood sugar. The effect of milk here is similar to that seen in hemoclastic crisis in diseases of the liver.

48: 849-864 (Aug. 27) 1927

*Surgical Treatment of Pulmonary Tuberculosis. F. Koch.—p. 849.

Surgical Treatment of Pulmonary Tuberculosis.—Koch suggests stimulating doses of roentgen rays applied to suspected areas of the supposedly well side to make sure of their inactivity before proceeding to operate on the diseased side. In progressively productive processes with caverns, surgery is strongly advisable. The free pleural space and the possi-

bility of bringing the caverns to collapse must decide between pneumothorax and a plastic operation. In productive forms without cavity formation conservative measures should first be given a thorough trial. Light productive or purely cirrhotic forms never justify operation. In severe exudative forms, pneumothorax is a failure; a plastic operation may be tried, but requires more than ordinary skill. Koch does not consider the presence of amyloid a contraindication to a plastic operation. As an independent intervention, paralyzing the diaphragm is done only in the rare cases of isolated processes in the lower lobe.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

71: 1277-1360 (Sept. 24) 1927

*Diagnosis of Activity of Tuberculosis. P. C. Gugelot.—p. 1282.
Transplantation of Mouse Sarcoma from Normal Mice to Mice Treated with Trypan Blue. G. O. E. Lignac and G. A. Kreuzwendedich von dem Borne.—p. 1302.
Cheese Poisoning. P. C. Cleyndert, Jr.—p. 1309.

Diagnosis of Activity of Internal Tuberculosis in Children by Blood Examinations.—Gugelot tested the sedimentation speed of the erythrocytes and the shifting of the nuclei of the neutrophil leukocytes in 206 children with clinically demonstrable internal tuberculosis. In only two cases did the results of the blood examination fail to agree with the clinical diagnosis. The combination of increased sedimentation speed and nuclear shifting has the most significance for activity of the tuberculous process. It was never found in inactive cases, but was present in eighty of ninety-five clinically active cases. In tuberculin-positive patients nuclear shifting was more frequent than pathologic sedimentation. He thinks it probable that the former is dependent on the tuberculous infection, and that its presence shows that the infection is not yet extinguished, whereas the increase in sedimentation speed occurs only when the breaking down of the cells has passed a certain limit. If this were true, increase in sedimentation speed would not, as a rule, occur without nuclear shifting; this he found to be in fact the case. With retrogression of the clinical signs of activity, sometimes the nuclear shifting, sometimes the sedimentation time was the first to return to normal. The tuberculin-negative patients presented, for the most, normal values; as regards sedimentation speed, the same was true of the tuberculin-positive, but clinically inactive cases, but increased nuclear shifting was present in 23.5 per cent of these cases, as against 12.5 per cent in the tuberculin-negative group. In a child who reacts to tuberculin and who presents pulmonary changes pointing to tuberculosis, normal values in the blood speak strongly against an active process, even though the temperature is somewhat variable; a distinct nuclear shifting without increased sedimentation speed confirms the tuberculous infection or speaks for lability of the process; abnormal values, even with approximately normal temperature, are a tolerably certain indication that the tuberculous process is active.

Hygiea, Stockholm

89: 705-736 (Sept. 30) 1927

*Postoperative Prognosis in Malignant Tumors of Upper Maxillary Region. F. Olaison.—p. 705.
*Traumatic Circumscribed Serous Meningitis with Roentgenologic Changes. R. Eeg-Olofsson.—p. 710.
*Tetanus and Parathyroid Extract-Collip. E. Sahlgren.—p. 722.

Statistics on Postoperative Prognosis in Malignant Tumors of Upper Maxillary Region.—In Olaison's thirty-five surgically treated cases (1901 to 1925), seventeen in men and eighteen in women, death, directly attributed to the operation, occurred in 20 per cent. Of the patients free of symptoms for more than six years after operation, two are still living, one fifteen, one seventeen years, respectively, after operation. Five of the total number are still alive and without symptoms. The average postoperative length of life (cases fatal within fourteen days excluded) was about three years and five months. As regards the results, there was no difference between a lesion of the right and one of the left side.

Case of Traumatic Circumscribed Serous Meningitis with Roentgenologic Changes.—Eeg-Olofsson's patient presented symptoms of intracranial lesion after trauma to the skull. Roentgen-ray examination indicated a tumor-like process in the pituitary fossa and led to the definite diagnosis of circumscribed serous meningitis. The disturbance developed and disappeared without intervention in four months.

Tetanus and Parathyroid Extract-Collip.—Sahlgren treated tetanus in a man, aged 42, with large doses of parathyroid extract-Collip and also, during part of the time, with calcium chloride, without noteworthy effect on the calcium content of the blood and with no effect on the spasms.

Norsk Magazin for Lægevidenskapen, Oslo

88: 801-888 (Oct.) 1927

*Diastase in Serum and Urine. C. K. Schaanning.—p. 801.
*Is Focal Infection an Important Etiologic Factor in So-Called Functional Mental Disorders? R. Gjessing.—p. 832.
Statistics on Ileus from Aker's Hospital. A. Christensen.—p. 846.
Smallpox Epidemic in Norway in 1256. C. Hafstad.—p. 862.
Calmette's B C G Vaccine in Practical Life. W. Holmboe.—p. 867.
Typhoid Fever in Norway from 1915 to 1924. F. G. Gade.—p. 869.

Diastase in Serum and Urine.—In his research on the diastase in the blood serum and the urine of normal persons and of patients who had a variety of renal disorders, Schaanning used the formula: ability of the kidney to concentrate the diastase $= \frac{\frac{d_u \times D}{15}}{d_s}$, d_u being the diastase in 1 cc. of urine (Wohlgemuth), d_s, the diastase in the serum, and D, twenty-four hour urine. In normal persons, this concentration ability was not below 320 per cent. He found that diuresis plays a decisive part in the determination of the diastase. The ability to concentrate diastase was reduced in nephrosclerosis, chronic nephritis, hypertonia with albuminuria and lowered kidney function, and in some acute renal affections, less regularly in the albuminuria of pregnancy. In two cases of nephrosis with impaired kidney it was low; in one with normal kidney function it was normal. Reduced value also appeared in some cases of surgical renal diseases. In ten catheterized cases less diastase was excreted by the diseased kidney than by the sound kidney. Determination of the diastase by this formula seems to him to afford a fairly good expression of the renal function, in approximate agreement with the usual kidney function tests.

Is Focal Infection an Important Etiologic Factor in So-Called Functional Mental Disorders?—Gjessing discusses the different views held on the relation of chronic infection to mental disorders, with special reference to Cotton and the Trenton school. Since the elimination, as far as possible, of the chronic infective process frequently results in improvement, the infection may be considered an important etiologic factor, with the advantage over many factors that it can be attacked. He sees the prophylactic side as equal in value to the strictly curative and points out the importance to the general practitioner of an understanding of the significance of chronic toxicosis in mental disorders.

Ugeskrift for Læger, Copenhagen

89: 897-924 (Oct. 6) 1927

Transperitoneal Cervical Retrovesical Cesarean Section. E. Hauch.—p. 897.
*Case of Pancreatogenic Fat Diarrhea. T. E. Hess Thaysen.—p. 901.
Four Blood Groups in Man. H. Nielsen.—p. 909.
*Case of Infection with Bacterium Abortum. E. G. Madsen.—p. 914.
Choice of Bismuth Preparations. A. Kissmeyer.—p. 915.
Treatment of Diabetes Mellitus in Practice.

Case of Pancreatogenic Fat Diarrhea.—Thaysen discusses pancreatogenic fat diarrhea in connection with a typical case due to a chronic diffuse pancreatitis complicated by extensive stone formation in the pancreas. He was unable to find any explanation of the abnormal excretion of fat that occurs in fat diarrhea.

Case of Infection with Bacterium Abortum.—In Madsen's patient, infection with *Bacterium abortum* was probable, primarily because of the agglutination titer 1:200, also because of the variable fever, the septic condition of the patient, and the fact that the patient had worked in infected stables and drunk raw milk from an infected herd.